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ORIGINAL COMMUNICATIONS.

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WHAT IS THE PROPER FIELD OF SALPINGO-OÖPHORECTOMY?

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BY

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No operation within the domain of gynecological surgery has been the topic of more doubt and discussion than that of the extirpation of the uterine appendages. Its use implies it may be abused; its abuse means it has a proper use. I know it is much easier to be critical than to be correct.

It is my intention in this paper to attempt to answer the inquiry: When and to what extent are we to sacrifice the ovaries and the tubes? In so doing I find that by necessity I must dwell, not incidentally only, on some of the diseases of the uterine appendages.

Battey's operation (August 27, 1872) consists in the removal of the ovaries, healthy or diseased, for the production of an artificial menopause. Hegar's operation (July 27, 1872) consists in the removal of the ovaries because of their diseased structure. Tait's operation (February 11, 1872) consists in the removal of the ovaries and tubes because of their diseases.

These three operators, Battey, Hegar, and Tait, each inde-

pendently, measure priority by a few days only. The times seemed ripe for the operation. All three share honors in this direction. While Hegar and Tait anticipated Battey by a few months, their first cases were fatal.

It is true that the removal of the ovaries is done much more frequently than that of the Fallopian tubes. Very often, indeed, when attempts are made to extirpate the former only, inadvertently the latter also are taken out. In point of danger there is little difference whether one or both of these organs are extirpated; nor does it matter particularly, in most instances, whether the operation is uni- or bilateral. The removal of either organ on either side practically renders the other of the same side useless in a procreative sense. But it does make much difference to what extent the ovaries are sacrificed. Their removal, as a rule, means an abrupt and immediate cessation of menstruation—an artificial menopause.

The realization of the special nervous phenomena of a natural menopause: the headaches, the perspirations, the flushes of heat, the skin tingling sensations, the general nervousness, the frequent and profuse discharges of urine, the morbid broodings, the melancholy, even insanity—vasomotor nerve storms—are usually significant enough to much disorder and disturb. It ought to be more forcibly appreciated that the menopause of any woman, especially if young, abruptly induced, is attended with phenomena of the nervous system more pronounced in perturbations, more enduring in results, than is the natural cessation of menstruation. So important a function of the female economy, continued for years with such physiological regularity, attended with so many general and local manifestations, cannot be stopped artificially and at once without serious vascular and nervous symptoms. The menopause is invariably attended by atrophic anatomical changes in the genital organs, progressive over a period variable in time and character; but there is no unsexing or making masculine of any woman, who has previously matured, when it is artificially induced. It is exceptionally noticed that menstruation continues indefinitely, notwithstanding attempts have been made to completely extirpate both ovaries. Of course I do not refer to cases in which there has been a discharge of blood for a few days at uncertain intervals. For the most part these exceptions are explicable on the ground of a diseased endometrium of some kind.

The indefinite continuance of menstruation, in time, quantity,

and duration, after a double oöphorectomy, means but one thing in my judgment—viz., the improper ligation of the broad ligament as to depth or location, and the unintentional leaving of some ovarian structure.

All such cases, in my experience, have undergone operations tedious, difficult, because of the matting together of the appendages by firm adhesions, densely organized, after months or years of chronic inflammation. Seemingly all ovarian stroma was removed; unintentionally some must have been left behind.

Tait's operation is more apt to be followed by an immediate menstrual cessation, for its execution implies a deeper transfixion of the folds of the broad ligaments in the ovarian artery and their nerve supply. A third ovary or some anomalous distributions of ovarian stroma are then more likely exsected. The free anastomosis of the ovarian and uterine vessels is obstructed when the ligature is placed near to the uterus.

No more conclusive proof of remaining Graafian follicles can there be than the subsequent occurrence of pregnancy after salpingo-oöphorectomy, as has happened with both Thomas and Emmet.

*Menstruation is dependent on both vascular and nerve relationship of the uterus with the ovaries.*

Fortunate indeed is she who has a continuance of menstruation after a salpingo-oöphorectomy, for physiological reasons. Unpleasant symptoms are avoided, provided, of course, all diseased structures have been removed.

There are in general three indications for this operation: (a) to abrogate the process of ovulation; (b) to check or modify the menstrual discharge; and (c) to remove organs incurably diseased.

When are we justified in making a Battey operation for certain nervous diseases?

Again and again have cases of hysteria, chorea, hysterio-epilepsy, neurasthenia, nymphomania, pelvic neuralgia, mania, and melancholia been treated in this way. Seemingly these functional disturbances of the nervous system may appear dependent on, or be aggravated by, the functional activity of the ovaries. Physicians are too often disposed to ascribe the mental condition of insane women to pelvic disease, when, in reality, these organs are in a comparatively healthy condition. If diseased or injured, is the mental aberration causative or concomitant?

Instead of an improvement following this operation for these functional nervous diseases, it is often questionable whether the patients are not worse, because of a premature onset of the menopause. No amount of pelvic or general physical disease will cause insanity, if conditions favorable thereto do not exist in the brain and the nervous system. The ovary may be the seat of pelvic pain, while in that organ there is no distinct pathological entity. Many cases of hysteria complain of this ovarian pain. Cases of hystero-epilepsy are oftentimes those of hysteria only, with its many ill-defined symptoms.

When there is no organic structural lesion in the ovaries, in cases of these functional nerve diseases, the operation of oöphorectomy is clearly contraindicated. Rarely indeed are they dependent on, although they may be aggravated by, the menstrual approach. The operation is only indicated when the nervous phenomena can be traced to, or are limited by, ovarian action, and when some serious organic ovarian morbid change, in kind or in degree, can be detected by the bimanual touch, with or without anesthesia. Experience now unmistakably establishes this line of legitimate surgical action in these cases. A major epilepsy, confirmed, purely menstrual as to time, does not justify this operation, says Weir Mitchell. Battey contended with great propriety that the operation is not one of election but necessity.

Quite recently I made a double sálpingo-oöphorectomy in a case in which the indications seemed clear and well defined. For months previous there had been a seemingly severe pain and tenderness about the left ovarian region. One or more convulsions of a hystero-epileptic nature, not violent, intermenstrual as well as menstrual, had been daily present. Under anesthesia the left lateral vaginal cul-de-sac was found filled with a thickened, hardened, adherent appendage. The indications seemed clear for a section, on account of the local conditions, whether causative or not. A good-sized hydrosalpinx and a cirrhotic ovary were removed from that side, and a purulent, non-cystic tube with a chronically inflamed ovary from the right. Convalescence was smooth; no convulsions have reappeared.

Is the Battey operation ever to be done for dysmenorrhea?

Personally I have never been able to see the propriety of such interference. True dysmenorrhea is a functional disorder of pain in the uterus—the menstrual organ. All pelvic pain

in the female, from whatever cause or condition, is very apt to increase at the catamenial period. This aggravation is not dysmenorrhea. The essential feature of dysmenorrhea is some morbid change in the uterus—the endometrium in particular—neurotic or structural, in some way interfering with the normal painless performance of the function of menstruation.

What is called ovarian dysmenorrhea is often a misnomer. True it is that pain originating in the uterus may be reflected to the ovary, especially the left. Ovarian dysmenorrhea is pain at the menstrual time in the ovarian region, resultant on some morbid painful ovulation, from some form of chronic ovaritis. There is absolutely no fixed time for the ovule to mature and the Graafian vesicle to burst. It occurs, as a rule, about the time of the maximum of menstrual congestion, as is proved by the fact that impregnation most frequently takes place within a few days following the menstrual cessation. But ovulation may culminate at the middle of an intermenstrual period, as is evidenced by the clinical history of that queer, very uncommon disease which I have entitled “periodical intermenstrual pain.”

A fuller consideration of this subject, since reading my paper thereon before the Cincinnati Obstetrical Society in 1891, and the American Gynecological Society in 1892, with the remarks then made, but confirm me in my views then expressed—viz.: “Any circumscribed induration of the cortex or stroma of either ovary, insignificant anatomically speaking, creates pressure on the follicles, including the nerve filaments, and may be the cause of local and reflex pains out of all proportion to the actual disease. The new-formed condensed tissue may be largely limited to the surface of the organ, so that the tunica albuginea may be so dense and thick that the function of ovulation may be permanently interfered with, preventing the ovarian structure from enlarging under the influence of menstrual hyperemia. It is not unreasonable to conclude that the preparation of an approaching period may commence in an ovary as early as ten to fourteen days before that period is due. The ovary undergoes a vascular excitement and its substance is hypertrophied; but the structural alterations above mentioned make these physiological changes painful and abnormal on account of the resistance to the passage of the ova through the peritoneal (endothelial) surfaces. The obstacles overcome after a series of days, the follicles having bored their way, tension is relaxed and pain subsides.”



Should ovulation occur under these circumstances at the menstrual time, there would be a characteristic ovarian dysmenorrhea. While most cases of periodical intermenstrual pain can be relieved, if not cured, by a combined general and local treatment, yet some call for a salpingo-oöphorectomy. So it may be with a few, very few, cases of ovarian dysmenorrhea.

All true dysmenorrhea of uterine origin can be remedied without any major surgery. No true ovarian neuralgia, menstrual or intramenstrual, unassociated with organic structural lesions of ovaries and tubes, demands an abdominal section for its cure. Possible doubts can be solved in time by examinations under anesthesia and by treatment employed.

Any section made—always diagnostic—actual touch and close inspection will settle. Organs not structurally diseased should be dropped and the incision closed.

Hegar's first oöphorectomy was done for an intolerable dysmenorrhea and ovarian neuralgia, for what underlying disease is not stated.

To what extent ought we to disturb the ovaries for uterine diseases?

It has been suggested, with some force, that the organs of ovulation should be extirpated when the uterus is absent or very ill-formed, and when the metro-vaginal canal is permanently occluded.

The recognized good results of oöphorectomy in the management of uterine fibroids, interstitial in kind, in the earlier stages of their growth, is too well established to be forgotten. Lawson Tait's experience in this direction is worth considering. The prevention of a possible pregnancy under these circumstances is another argument in its favor. For the same reason it is thought that the ovaries should be removed when a Cesarean section is made for a seriously contracted pelvis; but it is better, it seems to me, that the tubes be tied and the ovaries left. The detection and thorough removal of the ovaries in cases of uterine fibroids of much size are always difficult and the results very uncertain.

Conditions of uterine displacements require a complex treatment. Any disorder of place of the uterus, whether a version or a flexion, requiring treatment, and then unrelieved by a combined constitutional and hygienic attention, and the removal, as far as practicable, of the primary cause and antecedent conditions, with clearly defined contraindications for

the use of any pessary, means marked structural lesions of that organ, together with the presence of many strong peritoneal adhesions round about, forcibly fixing this abnormal position. These cases ought to have surgery; otherwise they drag out a miserable existence of pain and physical disabilities.

An Alexander operation of shortening the round ligament, or a vaginal fixation of the uterus, in such conditions is unreasonable. A section wherein the peritoneal adhesions are broken up, and the dislocated organ put into a better posture, enables us at the same sitting to detect, by actual inspection, in what way and how much the appendages are diseased. Almost always they are; their removal, in whole or in part, should then come.

We encounter one of the most difficult and serious problems in the whole question at issue, when we approach the consideration of the morbid conditions of the ovaries and tubes making an oöphorectomy or salpingectomy, one or both, expedient and justifiable.

No one hesitates as to the propriety of the removal of an ovarian cyst—the sooner the better. No one for a moment will contest the advisability of the exsection of the uterine appendages seriously and hopelessly involved in disease. Spencer Wells' experiences have taught us valuable lessons. Out of his 1,000 ovariectomies (some 228 living under 40), 120 had 230 children; only 2.6 per cent had recurrences on the opposite side.

Then always look to, and carefully examine, the appendage of the opposite side, for macroscopical evidences of disease, in order to determine what best there to do.

He who has witnessed, on section, the ravages of gonorrheal salpingitis, ovaritis, and pelvic peritonitis; noticed the pelvic pain, the febrile disturbances, the threatened death, the inevitable relapses, must say naught else can be done. Some localized sepses, puerperal or non-puerperal, do as much damage. Beyond these there are several morbid entities, less pronounced, which need shed on them all the light we have. In the present chaotic state of indications the authorities are by no means clear.

Salpingitis, in some form, is a very common affection. Surgical relief for it depends largely on its type and duration.

Purely catarrhal forms of salpingitis—the most frequent—never need section; the watery encysted (hydrosalpinx) usually

do; the bloody and purulent (hemato- and pyosalpinx) almost always. Unmistakable evidences of the special variety are not always clearly defined. We may reasonably infer the presence of the purulent variety, by the existence of a boggy mass posterior and lateral to the uterus (possibly increasing slowly in size), by the febrile movements, and by the sensible depreciation of the general health.

It is thought that salpingitis and oöphoritis of the saccated form is worse when the streptococcus has been the source of infection.

While slight purulent accumulations may be disposed of by Nature and general treatment, a large one (distinctly encysted pyosalpinx) never can.

I have witnessed marked improvement in a few cases which had had repeatedly free discharges of pus through the uterine end of a distended tube. These cases were all septic, not specific. The spontaneous relief in these cases, by the evacuations of pus, was always preceded for a few days by increased pelvic pain and some elevated temperature. The fimbriated ends of the tubes were absolutely, probably permanently, closed. It is fortunate that Nature so protects herself. Patients, of course, are sterile.

A Fallopian tube slightly distended with water, mucus, or pus may recover itself, if well emptied after abdominal section. The evacuation of the same can be effected in one of two ways—(a) aspiration; (b) the passage of a probe into the ampulla, followed by finger compression. The contents thus squeezed out, a partly diseased tube may recover itself.

When a pyosalpinx follows in the wake of a catarrhal salpingitis there are always more or less interstitial changes in the tube. It becomes thickened, adherent, closed at both ends. Coexisting and resulting pelvic peritonitis is constant. A seriously distended tube from pus may burst.

Now that we understand the *modus operandi* of periuterine inflammations, by the route of endometrial infection, single or mixed, we can comprehend the extreme vulnerability of the female peritoneum to disease, bearing, as it does, the brunt of many indiscretions, puerperal and non-puerperal, moral and professional.

Probably a majority of women after 35 would, on an autopsic examination, show structural lesions of the peritoneum to some degree. Pelvic peritonitis in the female is even more common than its kindred affection of the chest—pleurisy—in the male.



These peritoneal adhesions, when more marked, are very tender, hinder normal mobility, and displace structures. In the female repeated attacks of an acute kind from trifling causes are very common.

Dr. Polk, of New York City, in the Transactions of the American Gynecological Society for 1887, with a conservative effort to save, not sacrifice, parts, speaks of the advantage of relieving accidentally imprisoned pelvic organs after section, without any mutilation. Pure adhesions never constitute a rule for the removal of organs. These taken away, normal function may be resumed.

How and to what extent can we give a betterment to conditions referred to without any abdominal section?

Rest in the recumbent posture is of primary importance. At the start of any acute attack free saline purgation is always beneficial. Repeated doses of the same in diminished quantities are useful to maintain daily alvine evacuations. Counter-irritation with small fly blisters, repeated at times, does good in the chronic forms of the disease, but cold or hot applications, according to the season of the year, are best for the acute. Very sthenic cases require minute doses of aconite or veratrum viride as antiphlogistics. Generally no internal medicine equals quinine in doses of grs. ij.-x., according to the temperature range. Opium is to be avoided as much as possible; if given, it is best administered as the aqueous extract made in suppositories for the rectum. The long-continued hot vaginal douche, usually grateful, sometimes provokes pain. Specific cases call for the hot sublimate douche, otherwise choice is given to the boracic acid solution. A nutritious diet prevents undue inroads of the disease on the general health.

For chronic cases no local medicament is superior to ichthyol diluted with boroglyceride. The stronger tincture of iodine (Churchill's) applied to the vaginal vault is an active resolvent and counterirritant. But not a few cases are positively aggravated by the use of any vaginal speculum.

Iron as a tonic is almost always contraindicated, although the patients are anemic and menstruation is suppressed. Minute doses of the bichloride of mercury are much more desirable. That the bromides do diminish pelvic congestion and are sexual sedatives must not be forgotten. Menorrhagic states of ovarian origin are best combated with the sodium bromide. Electricity, in the form of the faradic current of tension, and better

still the galvanic current, is to be considered in old cases to resolve pelvic exudates, abate pain, and control local neuroses.

In this way most cases can be ameliorated or cured. No operation is considered, none is entertained, unless fair trial has been made of these milder measures for from a few days to three months.

Relapses are oftentimes milder.

Certain indications are afforded by a careful microscopical examination of the blood. Says Cabot: "Increasing counts of leucocytes usually point to need of an operation; stationary leucocytosis to a well walled-off abscess. The size of the count is a rough measure of the size of the abscess, and cases without leucocytosis rarely need operation, usually recovering under palliative treatment; also many with leucocytosis. Pelvic pain and soreness may be as great in various non-suppurative conditions as when abscess is present, but the leucocyte count is raised in none of the pelvic diseases of woman, except abscess, septicemia, and hemorrhage. Endometritis and cystitis cause no leucocytosis. The application of these rules will not infrequently help in the diagnosis of pelvic disease, and in deciding how much importance to attach to the complaints of pain and tenderness in doubtful cases. The absence of leucocytosis makes us rightly confident that no abscess of any considerable size exists."

Can naught else be done, in some pronounced and confirmed cases, to forego the possibility or probability of an abdominal section?

Salpingitis is very rarely indeed a primary disease; almost invariably an outcropping of an endometritis. Both tubes are usually attacked, the left the more frequently. How far it is possible to arrest the morbid movement and check the progress of the extending disease seriously concerns us. Intrauterine interference is not to be dreaded now, as it was in days prior to antiseptis. As long as the infecting area remains in the uterine cavity, so long will the pelvic peritoneum throw out lymph. The septic forces removed, the lymph effusion ceases, further extension stops. To anesthetize the patient, to dilate, to curette and to pack and medicate the uterine cavity are correct in theory and positive in results. Physical evidences of the remnants of pelvic exudation may not be effaced for months, still a decided improvement comes.

A previously occluded uterine end of a Fallopian tube may be made patent by this minor surgical step. Endosalpingitis is less amenable to treatment than is endometritis, but it is reasonable to believe that a betterment will follow, if the endometrium, anatomically and physiologically much like and connected therewith, has its disease annihilated.

The tubes exsected, there is, of course, less danger of any reinfection, but this implies a step which we should studiously attempt to avoid.

As not a few diseases of the ovaries are resultant on tubal infections, we are again forcibly reminded of the importance of preventing and controlling the morbid action at its fountain head.

The ovary when first attacked is injured on its peritoneal layer. There is a localized pelvic peritonitis—a perioöphoritis. Probably in most instances the structures beneath the periphery are implicated. The whole organ becomes congested, enlarged, adherent, and may suppurate. Parenchymatous hyperemia leads to interstitial hyperplasia, which in time may develop into cirrhosis or sclerosis. Then the ovaries are hardened, shrivelled, scarred. The gland tissue is replaced, in whole or in part, by a fibrous material; its follicles disturbed, destroyed. The function of the whole organ is always hindered, hence sterility.

Some forms of menorrhagia are observable in the stage of ovarian parenchymatous hypertrophy; but when contraction and condensation follow, the amenorrheic states are experienced, though the menstrual molimina may be quite severe. Always there is an array of annoying and painful symptoms. The disease is never fatal *per se*, hence the symptoms are protracted until Nature gives relief, after a complete arrest of menstruation and ovulation.

An ovary smaller than normal, quite pale, a condition expressive of local torpidity and general depreciation of health, may simulate after section a cirrhosis, but should not be taken for it.

It is very easy to understand why ovarian abscesses are more frequent than uterine, for the tissues are different in kind and formation. Localized pus formations of the ovary (one drachm to one ounce) are in my experience not rare.

Follicular ovaritis with cystic degeneration is a very common affection. We hear very often of ovaries being removed for cystic degeneration. What is cystic degeneration?

Follicular enlargement is not a true cystic degeneration. It is not incurable and may be purely physiological. An inspection of the ovaries shows a simple dilatation of the ovisac, with an accumulation of serous fluid, no symptoms being present. A so-called cystic degeneration of the ovary is a hydrods folliculorum; each cyst, from a pea to walnut in size, on the periphery of the organ, is a retention sac, a distended follicle, from a thickened and contracted stroma. The process of formation is a hyperphysiological one, often noticed on the opposite side during ovariectomies, and is a condition entirely distinct from the beginnings of ovarian cystoma. It may be regarded as a diseased process only when this cystic degeneration is extensive and deep-seated. Then it disturbs normal ovulation, impairs the integrity, and leads to degenerative changes of that organ. Thus interstitial sclerosis is often met with in ovaries so affected. It is compatible with physiological ovulation in its early changes, but when advanced the follicles are choked, the nerve filaments compressed—the chief cause of the nervous symptoms. Lawson Tait speaks of uterine hemorrhage as a result of ovarian cystic degeneration. Greig Smith also refers to the fact.

Menorrhagia of ovarian origin is uninfluenced by the ordinary medicinal uterine hemostatics, is aggravated by uterine interference, and is controlled only by remedies and means addressed to the seat of the disease.

The idea that extirpation is needed in most of these cases of cystic degeneration of the ovaries is in opposition to all the principles of conservative surgery. A simple puncturing of the larger cysts after section will answer for many cases. A few may, but most require no surgical treatment whatever.

All of our text books on gynecology speak of ovarian prolapse, and every gynecologist has seen cases. It is a condition of much discomfort. Locomotion is more or less painful, often damaging. So is defecation. Nutrition is sometimes seriously affected. While ovarian prolapse is, as a rule, a secondary lesion, incident to an increased bulk and weight of that organ, no ovary can be prolapsed long without becoming more or less hyperemic, hyperplastic, hyperesthetic. Disordered position always means altered and impeded circulation. Many prolapsed ovaries become adherent. Ovarian prolapse long-continued, with structural lesions in and about, the source of much pelvic discomfort, unrelieved by palliative treatment, calls for an oöphorectomy.

Retroversion and retroflexion of the uterus often bring about prolapses of the ovaries. Associated therewith, in bad cases, we find besides chronic endometritis, chronic salpingitis, chronic ovaritis, and chronic pelvic peritonitis. Abdominal section is the only recourse.

If the breaking up of the pelvic adhesions, the removal of one or both ovaries and tubes, or the puncturing of distended cysts, with the better fixation of the dislocated uterus, promises an imperfect relief, then complete hysterectomy with vaginal drainage must come. Possibly a good hysterorrhaphy may be all-sufficient, to better the malposition and malcondition of uterus and appendages. The degree of seriousness of any complicated intrapelvic disease is only accurately determined by a thorough vaginal or abdominal section. This first step of all major radical operations is explorative; therefore it is prudent for the surgeon not to bind himself by any positive promise as to his course of procedure at the operating table.

While I am an urgent advocate to save as many and as much ovarian structure as reason would dictate, it is rare that the corresponding tube can be saved. The usual route of extension of these diseases, and the fact that future pelvic reinfection from the uterus is prevented if the tube is removed, imply the necessity of exsection of tube, if occasion demands any sacrifice of ovarian structure, in the performance of a Hegar or Tait operation.

Oöphorectomy and salpingo-oöphorectomy is one of the easiest and at the same time one of the most difficult of operations. Nothing is more easy than a simple, smooth abdominal section for the removal of non-adherent, healthy tubes and ovaries. But a case of long duration of specific or septic inflammatory mischief of the uterine appendages, where all of the intrapelvic organs and tissues are not only broken down, soft and brittle, but closely matted together, the lines of demarcation neither felt nor seen, necessitates a tedious, difficult, and serious enucleation of the parts, with the fear of damaging intestines, bladder, rectum, the rupturing of a pus tube or an ovarian abscess, the presence of no inconsiderable hemorrhage, and the contamination of the surrounding field. Fecal fistulæ often have such a start. Septic peritonitis is almost sure to follow peritoneal infection. Primary hemorrhage means a delay to control when blood oozes from many points. Ligatures cut like a knife through friable tissues. Secondary hemorrhage blasts not a few promising results. An ovari-



otomy for an intraligamentous or a universally adherent cyst could be no worse.

The mention of secondary hemorrhage brings to mind the question of ligature, its kind and method of application. Thoroughly sterilized catgut or kangaroo tendon is probably the best material for this ligature.

For years I have abandoned the use of the Staffordshire knot; more recently I have largely discontinued the so called link or figure-of-eight ligature. The best method of ligation, I think, is to transfix the broad ligament near to the pelvic wall (after an enucleation of the appendages), then transfix the same again by a second ligature near to the uterine cornu. A complete exsection of the appendages can then be made without cutting near to these ligatures. Subsequent slipping, by no means uncommon, by either of the first-mentioned methods is in this an impossibility. The least oozing of blood from the excised edges can be speedily stopped by an overstitching with fine catgut—a procedure very advisable to prevent any intestinal adhesions.

The hilum of the ovary is not the most satisfactory structure about which to place a constricting ligature.

When should the uterus be removed with the appendages?

A thorough ablation of the uterine appendages near to the uterus cuts off the ovarian artery and the supply of the uterine artery at the point of their anastomosis. Nerve connections are severed by deep transfixion and ligation. The uterus atrophies. Still this organ may be so contaminated with disease germs that, in order to cut off the whole septic field and give full drainage, a hysterectomy is clearly indicated. For the most part this operation is called for in post-puerperal cases, next in specific, and least frequently in septic non-puerperal cases. A removal of the uterus causes a greater shock to the nervous system than that of its appendages. The uterus always atrophies some after oöphorectomies, sometimes to half its former volume. If diseased only by chronic catarrh and vascular changes, usually it then gives no further trouble, but remains useful in a mechanical way, filling up its pelvic space, thereby preventing displacements of structures about and above. A vagina with, is, as a rule, better than a vagina without, a uterus, for it remains of longer dimensions, is not so contracted, and does not become abnormal from cicatricial formations. A thorough, sharp curettage

of the uterine cavity in most cases of septic endometritis and metritis, puerperal and non-puerperal; in all cases of specific endometritis, either antedating, or at same sitting for, an abdominal section, repeated, it may be, at some future time, ought, in my judgment, to markedly curtail the needs for hysterectomy.

We take it that the abdominal section is in almost all instances better than the vaginal. The signal advantages of the Trendelenburg posture at times all recognize.

There are in medical minds great differences in estimating the importance and necessity for surgical operations. The frequency of many abdominal sections depends as much on the attendant as the case itself. Doléris has said that 5 out of 7 cases of oöphorectomy done in Paris have been unnecessary and unjustifiable. Dr. C. W. Chancellor, United States consul at Havre in 1896, estimated that in Paris alone over 40,000 women have been subjected to oöphorectomy and hysterectomy since 1883, and 50,000 in France in the same time. Many, he says, are in a more deplorable condition than before; not more than 5 per cent are benefited. How often done needlessly in this country it is impossible to estimate. A large number of healthy ovaries have unfortunately found their way in pickling pots. To what extent the rounds of successful abdominal surgery have been swelled in this way no one can say.

Prostitutes are sometimes disposed to be friendly advocates of its execution.

The old method of removing both sides of the appendages when one is diseased is, at the present day, so unreasonable as not to be countenanced.

Finally, allow me to say:

1. After all abdominal sections for supposed diseases of the uterine appendages we should carefully lift up these parts, after enucleation if needed, and thoroughly inspect them for macroscopical evidences of disease.
2. Remove only such parts of these appendages, the ovaries in particular, as may be hopelessly diseased.
3. Do not disturb the healthy side unless for good and sufficient reasons.
4. Consider slight cystic degeneration or cirrhosis of the ovaries as insufficient grounds for their extirpation.
5. Bear in mind that ovulation and menstruation, local only in certain manifestations, are systemic always in physiological changes.

True conservatism is the proper attitude of all modern surgery.

It is the highest aim of all we do to consider, to protect, to preserve, and to maintain.

Has as much consideration been given to the salvation of the uterine appendages as is devoted to the preservation of the analogous organs of the male?

We are eternally in contact with problems. Let the light enter. Goethe has well said: "*Es ist immer gut etwas zu wissen.*"

AVONDALE, CINCINNATI.

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## THE USE AND ABUSE OF NORMAL SALT SOLUTION.<sup>1</sup>

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BY

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INASMUCH as the employment of normal salt solution has become so universal, has proved so valuable, and has been to some extent abused, I have felt constrained to present this paper, hoping by it to induce a free interchange of opinions on the subject.

*Definition.*—The term normal salt solution has been employed interchangeably with artificial serum. It has been applied to various compositions of the constituent elements of the blood and in various strengths, some containing only the salts and others egg albumen as well. Recently considerable discussion has occurred in medical periodicals relative to the proportion of this chloride in the blood, and some confusion has grown out of it. According to Kirkes' "Handbook of Physiology," in 1,000 parts of blood plasma there are 5.546 parts of sodium chloride, approximately 0.6 per cent, and for convenience we will define it as a 0.6 per cent solution of sodium chloride in distilled water.

*History.*—In the ancient history of Egypt blood transfusion is attested by divers passages of ancient authors (Ovid, Erophile). At the instance of his mistress, Medea, Jason would have restored youth and virility to the old Æson by bleeding from the jugular vein and injecting an infusion of aromatic

<sup>1</sup> Read at the eleventh annual meeting of the Southern Surgical and Gynecological Association, at Memphis, Tenn., December 6, 7, and 8, 1898.



plants. In Vienna, in 1656, a solution of opium in sherry wine was put into a dog's veins successfully. Blood transfusion quickly followed this, but finally it became a panacea, and on account of its misuse laws prohibiting its use were promulgated. Again, in 1777, Regnaudot recommended it anew, and later the Baron de Percy, James Blundell, and more recently De Belina practised it successfully. From the impracticability of mediate transfusion of blood the immediate method was employed. But as even this required the convenience of some willing donor of the human family or the presence of a lower animal, it too was not suitable to general work. A substitute was found in a synthetical preparation containing some ingredients of the blood serum, usually of the inorganic salts with or without albumen. Thomas Latta, inspired by the chemical researches of O'Shaughnessy, injected salt solution into the veins of his patients. Dupuytren, Magendie, and Gaspard followed him in this plan. In 1855 cholera was treated by intravenous infusion of salt solution. The fluid recommended by Little for use in the treatment of this disease was composed of sodium chloride, fifty grains; potassium chloride, three grains; sodium sulphate and sodium carbonate, of each two grains; and water, one pint. Alcohol was added to these preparations in some instances.

The employment of normal salt solution, its field of usefulness broadening as well, gradually increased up to about 1890. Since then its application has rapidly increased, until to-day many surgeons use it almost exclusively for wound irrigations and very largely in other fields, while physicians find its efficacy and the number of its indications constantly increasing. S. C. Gordon, of Portland, Maine, says he remembers Prof. E. R. Peaslee, in 1855 to 1860, was accustomed, in ovariectomy, to wash his hands, to cover his instruments, and to irrigate the abdominal cavity with what he called artificial serum, which was composed of egg albumen, sodium chloride, and water in the proportions in which they occur in the blood. In 1879 Bizzozzero and Golgi injected it into the peritoneal cavity, which gave some brilliant results, but on the whole became unsatisfactory and was abandoned. In 1888 Dastre and Loyer studied its effect on the general physiology of animals and recommended it in infectious diseases.

*Comparison of Methods.*—Its introduction into the body for changing the character and composition of the blood and other purposes has been by five different avenues—viz., intravenous,

subcutaneous, intraperitoneal, rectal enema, and intra-arterial. Each of these is said to have its special indications, which will be considered later. The nature of the individual surgeon's work no doubt influences his preference as to route. The abdominal surgeon will prefer the rectal, intraperitoneal, and subcutaneous, emergency surgeons the intravenous and rectal, while the plastic and general surgeon will elect the rectal and subcutaneous routes. The intravenous, while most rapid and therefore most applicable to the most dangerous cases, is in itself the most dangerous (except the intra-arterial), as referred to again in this paper. Nor is it always quickest. A private letter from a prominent surgeon in New York tells of his vexation in an important case in which two surgeons were thirty minutes in getting the solution to run into the median basilic vein. And, too, apparatuses specially devised for this method are generally arranged for practising the subcutaneous method until the intravenous can be arranged. We believe the intra-arterial route, recommended by Dawbarn, should never be used.

*Physiological Action.*—We are not aware that the physiological action of normal salt solution has been elaborately studied, further than the investigation made by Dastre and Loye, but enough for practical working is known. It increases the volume of the blood and lessens its specific gravity. This, in conjunction with its stimulating effect on the cardiac ganglia and arteries, accelerates the circulation of the blood. By increasing the volume of the blood it increases the arterial tension and thereby increases the blood supply to the heart through the coronary arteries. It stimulates the nerve centres, sometimes causing marked excitement, even when used subcutaneously, as noted by Fourmeaux. The skin, kidney, and intestinal functions are stimulated markedly and other organs are made to do more work. Locally, it does not coagulate albuminous fluids, such as blood serum, but, on the contrary, dilutes them, thus facilitating their removal. It is also a local stimulant, causing contraction of the smaller blood vessels and in that way exerting a hemostatic action. It has a decided stimulating effect on osmosis, and in this way, no doubt, acts to a considerable extent upon the emunctories. Fourmeaux and other French investigators found the weight of the spleen in the lower animals much increased, though no change in its size was apparent. This effect, though not so constant, was also noticed in the liver. According to Hayem, Plouviez, and

Poiggale, salt solution augments the number of red blood corpuscles. Fourmeaux has also demonstrated this. He found in animals, too, the bone marrow was more fluid after its use, and in one a subarachnoid cerebral edema after ligating both ureters. This same author, whose thesis on this subject is invaluable, found that in the rabbit quantities of less than four milligrammes to the kilogramme of the animal's weight were retained in the system.

We believe its effect on the blood and glandular system is even more marked than physiologists have told. Otherwise, how explain the fact that blood may be abstracted from a healthy animal up to one-nineteenth its weight and life be restored by the immediate infusion of normal salt solution, while such a result does not follow if the water without the salt be employed?

*Elimination.*—The quantity of urine is remarkably increased, being often four times the usual amount during the first few days following operation, and, according to Voit and Rabuteau, the amount of urea excreted is considerably increased. The amount of sodium chloride excreted by the kidneys is enormously increased, and Fourmeaux has noticed on the lips of puerperal septic women that had received large quantities a salty taste and crystals of salt for some days afterward. The reaction of the perspiration becomes neutral and loaded with sodium chloride. In autopsies made shortly after large quantities of normal salt solution had been employed hypodermatically, considerable quantities of thin fluid, rich in sodium chloride, have been found in the intestine. It has also been noticed that in patients treated by large quantities of the solution the dosage for catharsis has been markedly lessened. So it may be said to leave the body by the skin, kidneys, lungs, and intestine, and in the order named as to relative quantity.

*Therapeutic Uses.*—As previously mentioned, the application of this solution has been in a wide and varied field. In general medicine its principal use has been in diphtheria, scarlatina, uremia, intestinal hemorrhage of typhoid fever, perforation of typhoid ulcers, cholera, cholera morbus, pneumonia, diabetic coma, hemoptysis, ulcerative endocarditis; poisoning by carbon monoxide, by mushrooms, or by alcohol; lead colic, epilepsy, tetanus, toxemia from colon bacillus, arsenical poisoning, pyelitis, renal insufficiency, and numerous other affections. In obstetrical practice sepsis, postpartal hemorrhage, and eclampsia are the conditions that have been most commonly

combated with it. The surgeon has found greater use for it, and probably ninety per cent of the amount used is by surgeons. They employ it to prevent or reduce shock during operation, and in hemorrhage and sepsis. It is also largely used in shock from injury, for irrigation during operations, and for other purposes to be mentioned later.

When the blood is handicapped by the various poisons of infectious diseases, salt solution has been found valuable in the way of "lavage" to carry off the toxins, and by the increased temperature following its use the production of antitoxins is said to be stimulated.<sup>1</sup>

In the various chemical poisons, as carbonyl, lead, alcohol, and even mushrooms,<sup>2</sup> it is used in combination with abstraction of blood. In the collapse of cholera and cholera morbus the tissues have been drained of serum, and this condition is ameliorated by the prompt use of the saline infusion. In renal insufficiency the compensatory emunctories are stimulated to greater activity, and it has been noted that as free perspiration occurs the renal function is again established. In uremia, in conjunction with abstraction of blood, as recommended some years since by Van Rensselaer, of Washington, the infusion of normal salt solution has proved to be very successful. Grandin has used it in uremia in enormous quantities by colon irrigations with marked success. As soon as intestinal hemorrhage in typhoid fever is thought to have ceased, the use of the solution by hypodermoclysis is strongly advisable. The danger of hypertension of blood vessels by the intravenous infusion, and the difficulty in properly estimating the amount of blood loss in such cases, precludes this method from employment.

In puerperal sepsis it has met with tolerable success, though our experience has been unfavorable. In this condition it has been used in small quantities subcutaneously and frequently repeated, and by the plan, recommended by Pozzi, of large intravenous infusions. Hanks and Stimson are strong advocates of this latter procedure. It may be said here that this remedy is not intended to exclude the ordinary means of treatment, but as a powerful adjuvant.

In postpartal hemorrhage is found one of the greatest indications for its use. In puerperal eclampsia brilliant success has attended its use with blood-letting. J. Whitridge Williams has adopted the practice in this condition of abstracting

<sup>1</sup> T. F. Reilly: Medical Record, November 12, 1898.

<sup>2</sup> Prentiss: Philadelphia Medical Journal, September 24, 1898.

the better part of a pint of blood and injecting subcutaneously double the amount of normal salt solution, repeating the latter daily until the urine is normal. In some of his cases chloroform and rapid delivery were also practised. He reports ten successful cases. Jewett has successfully employed it alone in eclampsia.

In surgery, shock, hemorrhage, and sepsis are the principal indications for its use. Its greatest influence in shock is exercised if employed early. If shock be from operation, infusion should be practised on the table in grave cases and immediately after operation in milder ones. Here the subcutaneous method is best, but the rectal way is especially valuable, one or two litres being easily thrown into the bowel, especially in the Trendelenburg position, and, if the temperature be from  $115^{\circ}$  to  $120^{\circ}$  F., exerts a powerful influence in the reduction of shock. For hemorrhage the same plan of treatment is to be followed. Severe hemorrhage, however, affords about the only indication for intravenous infusion. In abdominal work I almost invariably leave a considerable quantity, one to fifteen litres, of normal salt solution in the abdominal cavity. When it is not necessary to use it during the operation this plan is very convenient and satisfactory. It is particularly good to promote urinary excretion, and to reduce shock by its intimate and prompt contact with the abdominal viscera. Many other indications for its use are found here. When denuded surfaces are left in the pelvic cavity a small amount of the solution floats the intestine and prevents its coming in contact for adhesion to these places. It dissolves the exudate on such surfaces and in that way prevents their becoming agglutinated to other structures. If small foci of infectious material, blood clots, or ovarian or other fluids have escaped the eye of the surgeon, it dilutes or dissolves them and lifts them up into the general peritoneal cavity for more prompt absorption. It prevents formation of coagula from venous oozing. In large quantities it prevents the collapse incident to the removal of large tumors. Its stimulating action on the large amount of blood vessels of various sizes in the abdominal cavity is remarkable. It prevents the almost unquenchable thirst so common after abdominal operations.

In bleeding fibroids infusion just preceding operation has been practised successfully by Boldt and others. For purposes of irrigation in general surgery it is far superior to sterile water and is largely used for this purpose.



The amount to be used in the veins and under the skin varies from a few hundred cubic centimetres to a few litres, according to the condition of the patient. In hemorrhage an amount should be used, in divided quantities, equal to the amount of blood lost, and given in a vein, or, if subcutaneously, twice that amount may be safely employed. Per rectum the amount may be practically unlimited, though at one injection two litres are sufficient.

*Contraindications and Abuses.*—That normal salt solution has great value in surgery we feel our experience with it during the past seven years has fully demonstrated. At the same time, judging from the reports of experimenters, it is not altogether a harmless agent. In personal letters from forty prominent surgeons of this country in reply to my inquiry concerning the evil and good results of its employment, not one mentioned any unpleasant experience with it, and most of them said they knew of no bad results from its use.

Some writers, however, have sounded warnings against its use in such blood conditions as hemophilia, dyscrasias, deficient fibrin, etc. It would seem but reasonable that such a strong stimulant, coupled with its dilatation of the blood vessels when used in large quantities, and especially when thrown directly into them, would be very harmful in such conditions of the circulatory apparatus as myocarditis, pericardial effusion, atheroma, arterio-sclerosis, cardiac degeneration, bad valvular lesions, thromboses, and recent cerebral apoplexies. Chronic inflammatory conditions of the kidneys, sclerotic and tubercular, are apt to be aggravated by it. Chronic affections of the liver and of the lungs are made worse, especially if malignant in nature. Great discretion is needed in its employment in many conditions. To throw into the circulation, either directly or indirectly, a considerable quantity of salt solution during active hemorrhage from large vessels, would be not unlike enlarging the wound in the vessel: it would be forcing the blood out from behind. Were preparations being made for laparotomy for ruptured tubal pregnancy during active hemorrhage, salt solution could with safety be used hypodermatically, provided enough blood was yet in circulation to absorb it. And this would be a wise procedure, as the vessels would be soon ligated and augmentation of the volume of the blood would immediately begin, provided the injection were well timed. If the intravenous route were selected its employment could not be before the vessels were ligated. To use this

remedy during consolidation stages of pneumonia is to overtax the circulation. In hemoptysis, to employ it during active hemorrhage would be, also, to encourage increased blood loss, while to inject it frequently and in small quantities under the skin as soon as active hemorrhage has ceased is to rapidly improve the patient's condition. The same holds good in all active hemorrhages. Wiercinsky<sup>1</sup> demonstrated that in acute anemia from hemorrhage it is preferable to inject one hundred to three hundred cubic centimetres many times than large quantities at once. Its use should be continued until normal arterial tension has been reached. The presence of toxins in the system has been found to retard the elimination of normal salt solution, and for that reason small quantities only should be given at a time and as often repeated as needed.

To inject salt solution late in colon bacillus infection is to embarrass the circulation, while its early use is attended with marked success (Bosc and Vedell).

*Precautions.*—It is necessary to avoid certain accidents and mistakes in employing normal salt solution. We must know the solution is sterile when it passes into the patient by any route other than the rectal; by the latter we cannot expect to be absolutely aseptic, nor is it necessary. This aseptic procedure requires aseptic solution to be placed in a sterile vessel, in which it is kept in the same condition. The tube and needle or canula through which it passes to the patient must be sterile. The skin through which a needle is to be plunged or an incision made for intravascular infusion must be rendered aseptic, or as nearly so as possible, according to the haste necessitated by the indications for its use. We should avoid the passage of air into the tissues or vessels, though some experimenters have said small bubbles do no harm. The temperature of the solution when it reaches the tissues should be 105° to 120° F. This is important, as the stimulating properties of the high temperature are needed, and particularly in shock, renal insufficiency, uremia, eclampsia, and sepsis, as the skin must act strongly as an emunctory. Chills following shortly injections of salt solution are harmful, notwithstanding their easy correction by morphia hypodermatically (Hanks). They are not welcome in patients of such low vitality as to require the use of the salt solution. We have seen hot salt solution in the reservoir, and yet, owing to some obstruction in the needle or flow tube, it was cold when it reached the

<sup>1</sup> Centralblatt für Gynäkologie, 1889, No. 41.

tissues. Considerable allowance must be made for fall in temperature of the solution in passing through the tube. This may be overcome by placing the tube in a dish of hot water near its lower end. A better estimate of the rapidity of the current through the tube is to be had when a transparent glass tube, having the same calibre as the rubber tube, is inserted a safe distance into the divided ends of a section of the latter. Probably never more than half a litre should be infused in one place in the cellular tissue, as local necrosis and aseptic inflammation, as results of over-distension of the tissue spaces, have been noted by Noble and others. Probably this would not occur were not more than five hundred cubic centimetres introduced through any one puncture.

The rapidity of the inflow of the solution is another important matter. Broun, of New York, has noticed pneumonia follow too rapid intravenous injection of saline solution. Fourmeaux noted engorgement of the spleen and liver, with marked pain in the former; and pleural, peritoneal, and sub-arachnoid effusions have been reported. Of course much hemorrhage preceding it would lessen these dangers, as they are probably due to over-distension of the circulatory apparatus. It is probable, as a rule, that one ounce per minute is a maximum quantity that can be safely introduced into veins or subcutaneous tissue. Many alarming symptoms and conditions have been observed to follow the use of normal salt solution, among them being pulmonary edema, dyspnea—according to the degree of edema—headache, vertigo, specks floating before the eyes, somnolence (probably from ventricular edema or cerebral hyperemia), mental excitement, delirium, hallucinations, severe pain in the left side, and throbbing in the neck. The changes in the spleen and liver found at autopsies have already been mentioned; these must be prevented when possible, and combated when present. The tension of the arteries is the criterion as to the amount of the solution to be employed, though this does not hold good in sepsis. In shock and hemorrhage the radial pulse is usually a good guide. If these points are considered in using salt solution it is believed less trouble will arise from it.



SUTURE OF THE WOUND AFTER ABDOMINAL SECTION.<sup>1</sup>

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BY

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IN introducing the subject, "Suture of the Wound after Abdominal Section," it is not out of place to first say a word regarding the nature and the location of the wound.

The abdominal cavity is opened through the middle line, the semilunar line, the recti muscles, the flat muscles, observing the course of the muscle fibres, as in one of the operations for the removal of the appendix, and through an incision carried parallel with the lower margin of the chest wall and in line of the inguinal canal. The various suture materials include silk, silkworm gut, catgut, kangaroo tendon, and silver wire. The various forms of suture include the through-and-through or interrupted, the figure-of-eight, and the buried including the subcuticular.

I will not consume the time of the Society by describing in detail the different forms of suture, this being too familiar to all to warrant me in doing so. These remarks are intended to record the writer's method of closing abdominal incisions and to elicit discussion of the subject, which will also record the methods of the individual members of this body. It is doubtless true that the greater number of abdominal operations are done through the linea alba. To this the writer takes exception, believing that as firm union cannot be obtained by confining the incision to the fascial line (linea alba) as when made through either rectus muscle. This also holds good in opening the abdomen through the semilunar lines in preference to the recti muscles. The writer's experience in opening the abdominal cavity includes many hundred operations, which, in their relative proportion, are classed: first, appendix; second, internal genitalia of the female; third, inguinal hernia; fourth, gall bladder and bile ducts; fifth, intestines and stomach; sixth, umbilical hernia; seventh, kidneys; eighth, ventral hernia; ninth, liver; tenth, spleen. In all of these operations,

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, November 17, 1898.

with the exception of those for the radical cure of inguinal, umbilical, and ventral hernia and the majority of the nephrectomies, I enter the abdominal cavity through the rectus muscle. In reference to the operation of nephrectomy, I may say in passing that I prefer the posterior operation. While it has been my good fortune to see each year a number of the cases I have previously operated upon, yet I cannot give the percentage of ventral herniæ which have followed. I do, however, see a few, the great majority of which follow as the result of drainage in the suppurative cases.

A number of the writer's operations have been on medical men, nurses, and friends. These I have been able to keep track of. Therefore I am in a position to say that I am perfectly satisfied with the method I employ in closing the abdomen. The most unsatisfactory closures in the writer's experience are those for purulent appendicitis—which I deeply regret to say are entirely too numerous—large umbilical and ventral herniæ.

The method the writer uses in the greater number of clean cases, excepting those for herniæ, is the through-and-through method, using silkworm gut and taking in little skin, much fasciæ and muscle, and little peritoneum. The manner of the introduction of the suture is that advocated by Dr. Joseph Price. In the case of herniæ I use the buried silver-wire suture, the simple interrupted, and not the mattress suture advocated by some surgeons. That the size of the incision is an influential factor in the occurrence of ventral hernia there is no doubt; therefore the smallest consistent with safety is the best. The writer could cite cases of athletes upon whom he has operated and who were not in the least disqualified subsequently from resuming their former practice.

That we are not always able to follow fixed and fast rules in suturing the abdominal wound we must admit. In short, we must be prepared to vary the form of suture according to the indications the particular case presents. In the presence of a very fat belly wall, entailing an incision of considerable size to deal with the pathological condition for which the operation is done, I do not always use the through-and-through suture. The chief objection to this form of suture under these circumstances is the tension to which the superficial fascia is subjected in exercising traction enough to make good apposition of the deeper layers. While I believe that in the majority of instances where the superficial fascia breaks down it is due to

infection and not to tension, yet I also believe that in many of these cases it is better to close the peritoneum, the muscles, and fasciæ separately, using the buried silver-wire suture in apposing the latter structures.

Personally I am a strong advocate of the buried silver-wire suture, particularly in the operations for the radical cure of hernia, a stout belly wall, as above referred to, and in certain other conditions. That the silver-wire sutures give rise to subsequent trouble has not been my experience, except in a few instances where infection has occurred. In clean fields of operation it goes without saying that infection should not occur. In very small wounds the through-and-through suture I regard as ideal.

I shall in brief review the advantages and objections I have found in the use of the various forms of sutures employed to close the abdominal wound.

The ordinary through-and-through or interrupted suture is, I find, entirely satisfactory in the greatest number of cases. Its ease of introduction, the close approximation of the divided surface without undue tension, and the result obtained have led me, from experience, to prefer this method of closure above others.

Those cases which, from the presence of superabundance of the superficial fascia, make this suture inadvisable, I have found will call for some form of tier suture, the first row closing the parietal peritoneum, the second the muscles and fasciæ. The superficial fascia should be but loosely brought together, in order to avoid tension, which exposes this structure to the risk of breaking down; and, lastly, the skin wound closed with either the subcuticular, continuous, or interrupted stitch.

The greatest objection to the introduction of the various suture materials for closing wounds by the tier-suture method is allowing foreign substances to remain in the tissues, with the possibility of their producing wound irritation by their mere presence, or, from infection from the incomplete sterilization of the substance or material used, cause an abscess and breaking down of the wound.

Silver wire is, of course, easily sterilized—a very strong recommendation in favor of this material. The manner by which the cut end of the suture is disposed of will determine the subsequent comfort or discomfort of the patient.

The resulting union of the abdominal wound I believe does not entirely depend upon the kind of suture employed to retain

the cut surface in approximation, but upon the careful apposition of the structures of the abdominal walls, putting just sufficient tension on the sutures to hold them in position without crowding them or causing the abdominal wound to pucker.

1634 WALNUT STREET.

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### PUERPERAL ECLAMPSIA.

REPORT OF A CASE, WITH THE TREATMENT OF SAME PATIENT DURING A  
SUBSEQUENT PREGNANCY.<sup>1</sup>

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BY

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THE following case of eclampsia occurred six weeks before expected delivery, and is related because the patient went through a subsequent pregnancy without a return of the disease, although there were some premonitory symptoms of it.

Mrs. X., white, age 24 years, of good physique, good habits, general good health, became pregnant for the first time about the end of September, 1895. There was an indefinite family history of rheumatic gout, although the disease has never been pronounced in any member of her family. Last menstruation September 24-28, 1895; "quickening" first noticed February 15, 1896; time of expected delivery, July 1, 1896. The urine was examined from time to time, but showed no abnormality.

April 20, 1896: The only additional note made in the record of these examinations was "abundant in quantity." May 20, 1896: Patient complained of some frontal headache and nausea, and was given calomel, one grain, in doses of one-tenth of a grain every ten minutes. This was followed by a teaspoonful of salts on the next morning. At the same time a sample of urine was asked for. This urine was not sent until the morning of the attack and was not examined until afterward.

May 22, 1896: The writer was called at 8 A.M. to come in haste, and found the patient semi-conscious (stupor), from which she could be aroused. Her head was thrown toward right shoulder, eyes turned toward the left and upward, skin and conjunctivæ of a dusky yellow color. There were clonic

<sup>1</sup> Read before the Cincinnati Obstetrical Society, April 14, 1898.

convulsions of head and extremities. This was the second convulsion. It occurred as soon as the physician entered the room, the first having occurred about one hour before.

Patient had had free evacuation of bowels on day before and had voided large quantities of urine, but had had more or less headache and nausea (without vomiting); she had not slept well during the preceding night. The third convulsion came on while I was eliciting this history, and was so characteristic of the eclamptic condition that there was no hesitation in pronouncing it as such and in making a grave prognosis. Morphia sulphate, half a grain, was given hypodermatically at once; the convulsions ceased and patient became quiet. A careful examination failed to reveal fetal heart sounds or fetal movements. Urine by catheter and heated in a spoon showed a great deal of albumin; but for the sake of clearness the examination of the specimen, which is above referred to as having been sent to my office, and which was carefully examined the next day, is here inserted: "Urine muddy; specific gravity 1020; acid; solid with albumin. Some granular and hyaline casts and epithelial cells."

As the patient did not remain quiet very long after the giving of the morphia, chloroform was administered to complete anesthesia, the cervix was dilated by the finger, and the membranes were ruptured. The patient remained quiet, that is, she had no more convulsions, but she complained and muttered in a low, delirious way; answered questions in a tolerably intelligent manner, but had first to be aroused from a half-stupor, into which she would again sink. Refused food. She was catheterized and given enemas and kept quiet during the day. There was no change and not the slightest evidence of the coming-on of labor nor of the clearing up of the mental condition.

At 8 P.M. manual dilatation of the cervix; forceps applied to the sides of the head, which was in L. O. A. position, with the head bent toward right shoulder and immovable to fingers in vagina. This bending of the fetal head made it extremely difficult to apply the forceps; but after they were in position the delivery was comparatively easy. Ordinary forceps were used. There was no laceration of either cervix or perineum. Child was dead. There was some swelling, with pitting on pressure, about the patient's ankles. This had not been noticed before the attack, although it undoubtedly was present.



This patient again became pregnant, after enjoying from seven to eight months of perfect health, in April, 1897. It may be proper to state that she was under treatment for several months after the delivery just recorded, for Bright's disease, subacute in character. The last menstruation was April 19-25, 1897; life, end of August; due January 24, 1898. Examination of urine: August 30, 1897, specific gravity 1024, acid, no albumin, no sugar; September 17, 1897, specific gravity 1010, acid, no albumin, no sugar; October 16, 1897, specific gravity 1025, acid, no albumin, no sugar; November 18, 1897, specific gravity 1021, acid, no albumin, no sugar. December 5: Day urine, 8 A.M. to 8 P.M., specific gravity 1041; acid; no albumin; no sugar; one pint; excess of phosphates; urea eight and a half grains to the ounce (Doremus). December 5-6: Night urine, 8 P.M. to 8 A.M., specific gravity 1023; acid; no albumin; no sugar; excess of phosphates; urea six and three-quarter grains to the ounce; quantity, one and one-half pints. This urine was used in experiments upon rabbits to test its toxicity, because of the diminished percentage of urea. It had been collected in Mason jars containing boric acid, one drachm to the pint.

*Experiment I.*—December 8, 1897: Day urine, filtered, neutralized, boiled; heavy deposit of phosphates; again filtered, removing most of phosphates. Injected unconcentrated, warm, quantity 50 cubic centimetres, into abdominal cavity of rabbit weighing 2 pounds  $5\frac{1}{2}$  ounces. Time, nine and a half minutes. December 8, 1897, 5:08 P.M., began injection; 5:13 (33 cubic centimetres), free urination; 5:17 $\frac{1}{2}$  (50 cubic centimetres), feces. Rabbit's temperature (rectal) at beginning, 100.8° F.; at end, 99.6° F. 5:25: Animal crouches and starts, as though trying to keep awake or as though suffering from pain; pupils somewhat dilated but contract to light; palpebral reflex is marked. 12 P.M.: Alive; reflexes abolished, pupils dilated; has appeared to be ill since 5:25 P.M., but there have been no convulsive movements; breathing slow but superficial. Died during the night.

*Experiment II.*—December 9, 1897: Night urine, 100 cubic centimetres, boiled, neutralized, and filtered. Rabbit 2 pounds  $5\frac{1}{4}$  ounces. Temperature (rectal) 100° F. 4:26 P.M.: Injected intra-abdominally 50 cubic centimetres in eight minutes forty-seven seconds. 4:36 P.M.: Injected intra-abdominally 30 cubic centimetres in five minutes ten seconds. This urine was unconcentrated and was injected warm. No convulsion. Rabbit died during night.

Although there was no albumin in the urine, the absence of convulsive action from either specimen made it possible that there was a deficient elimination of poisons and that the patient was in danger of having eclampsia. She was given calomel five grains, pulvis jalapæ co. two drachms in broken doses, followed by sodium phosphate and sodium sulphate, of each a half-drachm in seltzer water three times daily. Diet, *milk*. Quiet. The symptoms all disappeared. The urine showed no abnormality until December 31, 1897; specific gravity, 1032; acid; albumin (not much); no sugar, no casts. In spite of the albumin the patient's general condition became so good that the treatment was limited to phosphate of sodium and milk diet. She was delivered January 16, 1898, at 7:30 A.M., of a healthy female child of nine pounds' weight. January 24, 1898: Urine—specific gravity, 1032; very acid; albumin (not abundant); no sugar. Microscopical examination: A few pus cells and epithelial cells, no casts. January 31, 1898: Urine—specific gravity, 1025; acid; no albumin, no sugar. Her recovery was uneventful.

There have been and are still so many theories in regard to the etiology of puerperal eclampsia that no definite line of conduct in reference to treatment can be said to have the absolute support of even the majority of accoucheurs. Dührssen<sup>1</sup> says the only rational line of treatment is accouchement forcé with incisions through the cervix and rapid delivery, while Charpentier<sup>2</sup> is even more emphatic in denouncing such a procedure as unscientific and capable of producing irremediable damage to the mother. It may not be amiss, therefore, to gather together the information which has been gained in the past six years in regard to etiology and treatment, and then to draw such conclusions as may seem justifiable.

Feltz and Ritter<sup>3</sup> experimented with normal urine and found that it produced uremic convulsions; while Bouchard,<sup>4</sup> who injects cold neutralized urine, found that in rabbits no convulsions were produced when the mixed urine of twenty-four hours was used, and that, although the urine of the day was doubly toxic as compared with that of the night, that of the latter period produced feeble convulsions, but that of the former produced narcosis, although each killed the animal experimented upon. Bouchard further demonstrated that physical exercise does not increase, but rather diminishes, the toxicity. The toxicity ranges from 30 to 60 cubic centimetres per kilo of animal, or an average of 45 cubic centimetres per kilo.



With these experiments as a basis, the effort has been made by many investigators to determine the toxicity of the urine in the pregnant and parturient states, with the hope of throwing some light on the question of eclampsia. Blanc<sup>6</sup> warmed and neutralized the urine from women in the last three months of pregnancy and during the first five days post partum, and injected it into the auricular vein of the rabbit. He found that the urine of the former period had a toxicity of 76 cubic centimetres per kilo, and that of the latter period 50 cubic centimetres per kilo. In the second set of experiments,<sup>6</sup> in which Blanc compares the urine of pregnant women with that of the non-pregnant, he finds that in the former the average is 132 cubic centimetres and in the latter 115.

Laulame and Chambrelent,<sup>7</sup> Tarnier,<sup>8</sup> Chambrelent and Demoret,<sup>9</sup> all demonstrated that the toxicity of the urine was diminished during the last three months of pregnancy. Gorla<sup>10</sup> comes to the same conclusion, but shows that the urine taken post partum was much more poisonous than that taken before delivery.

Ludwig and Savor<sup>11</sup> claim that these experiments can only mean that the urine of pregnancy is about as toxic as distilled water, and then go on to demonstrate that the toxicity of the urine of pregnancy is represented by the coefficient of 60 cubic centimetres per kilo. Their position is, however, upset by Volhard,<sup>12</sup> whose experiments with urine from normal pregnancy showed a variation in toxicity of from 35.5 cubic centimetres to 245 cubic centimetres per kilo, while in one case, after the injection of 500 cubic centimetres in all, or 200 per kilo, the rabbit remained well.

The uncertainty of result in the foregoing experiments (I had not then seen Volhard's article) led me to do some research<sup>13</sup> work on the urine of the last month of pregnancy. It seemed a justifiable conclusion that in most of the experiments which had already been made there were elements of possible danger that should, if possible, be eliminated—these dangers were filling the blood stream with an abnormal fluid, oftentimes cold (Bouchard); the possible contagion by micro-organisms or their alkaloidal products; the effect of injecting albuminoid bodies, blood cells, etc. To avoid these difficulties the following precautions were taken: The urine was collected during twenty-four hours in thoroughly cleaned screw-top fruit jars (quarts), in each of which were put two drachms of Morson's boric acid. The patient was asked to pass the urine directly

into the jars. The urine was then concentrated to one-half to one-third bulk, neutralized with sodium bicarbonate, filtered, and injected warm (about 100°) into the abdominal cavity of rabbits, the abdomen having first been cleared of hair and scrubbed with a solution of bichloride of mercury 1:500. In each instance the needle of the syringe was pointed toward the lower extremities to avoid wounding the liver, diaphragm, etc.

Twelve experiments were made in all, the urine having been taken at random from patients in the wards of a maternity hospital, from the beneficiaries of the Cincinnati Maternity Society, and from patients in the author's private practice. As a basis for work in the intra-abdominal method, Experiment 1 was made with unconcentrated, practically unchanged urine. One hundred and ten cubic centimetres of this killed a rabbit weighing  $4\frac{1}{2}$  pounds in two hours and thirty-nine minutes, the death being preceded by violent clonic and tonic convulsions simulating strychnia poisoning or eclampsia.

*Experiment III.*—May 24, 1897. Urine of primipara; specific gravity, 1020; acid. Urine boiled down to one-half bulk, warmed, neutralized, and filtered; 25 cubic centimetres injected into abdomen of rabbit weighing about one pound (one-half kilogramme), at 2:50 P.M. Time for injection, six minutes. Rabbit's temperature (rectal), 99° F. 2:57 P.M.: Restless for one minute; palpebral reflex absent. 2:58 P.M.: Some jerking, followed by tonic convulsion characterized by opisthotonos and stretching of all extremities, then clonic convulsion. Ten seconds of rest, then a second convulsion exactly like the first; emission of dark fluid per rectum. 3:05 P.M.: Died in convulsion. 3:35 P.M.: Postmortem rigidity well marked.

"On opening the abdominal cavity nearly 10 cubic centimetres of dark-colored fluid very similar in character to that injected were found. No lesions were found."

*Experiment IV.*—May 24, 1897. Urine same as No. 3; rabbit of same weight as preceding; rabbit's temperature (rectal), 99° F. 8:59 P.M.: Twenty cubic centimetres injected into abdomen in two minutes. 9:11 P.M.: Fell on side in complete relaxation; does not move when touched; pupils react sluggishly to light. 9:20 P.M.: Convulsion exactly the same as that of Experiment 3, preceded by slight tremor and gasping respiration. Had in all thirteen convulsions, last lasting for a few seconds (first tonic, then clonic), the last three being quite feeble. 9:31 P.M.: Died. 10:00 P.M.: Postmortem rigidity well marked.

“*Experiment V.*—May 24, 1897. 9:15 P.M.: Injected 8 cubic centimetres of same urine (Nos. 3 and 4) into rabbit of same weight. Temperature 99°. This urine was warm and was injected in four minutes into abdomen. 9:28 P.M.: Lying prone. 9:36 P.M.: Can hardly be aroused; pupils widely dilated; respirations gasping; lies as though completely paralyzed. 9:38 P.M.: Slight twitching. 10:45 P.M.: Has been lying prone and relaxed, with occasional efforts to change posture; cannot be aroused; respirations rapid and jerky; does not flinch or wink when finger touches eye; pupils dilated. May 25, 12:45 A.M.: Respirations slow and deep; palpebral reflex present; sight normal. May 25, 4 P.M.: Rabbit alive and apparently well: eats and drinks normally.

“*Experiment VI.*—May 25, 1897. Urine of multipara (Lin-gu); passed only one pint in twenty-four hours (?). This was boiled down to two ounces: specific gravity, 1028; reaction acid; no albumin, no sugar. Patient has phthisis; age 32 years; due May 27, 1897. 4:17 P.M.: After again warming and filtering, 8 cubic centimetres injected intra-abdominally into rabbit of one pound (one-half kilogramme) in one minute. 4:19 P.M.: Restless; moving about table; disposed to take crouching or prone attitude; falls to one side. 4:21 P.M.: Unable to use anterior extremities; moves posterior ones as though to support itself. 4:22 P.M.: Has jerky movements in body, followed immediately by a peculiar convulsion; lower jaw drawn sharply downward; convulsive contraction in neighborhood of diaphragm, then centrifugal explosion. The whole appearance looks as though the animal were about to vomit. Almost instantly there was quiet with relaxation, followed by a few feeble gasps, and death occurred at 4:23 P.M.

“*Experiment VII.*—May 13, 1897. Urine of primipara (Kramig) aged 21 years; specific gravity, 1015; acid; no albumin, no sugar. Woman always healthy; well developed; date of expected confinement, June 29, 1897. Family history: Father died of heart disease; mother healthy. No diathetic condition discoverable. This urine was boiled down to one-third of its bulk, to specific gravity 1056; 50 cubic centimetres of this concentrated urine were neutralized, filtered, warmed, and injected into abdomen of a rabbit weighing 1,750 grammes, in fifteen minutes. 4 P.M.: Returned to cage; cannot support himself; lies flat on abdomen; makes efforts to regain his feet; respiration slow; supports head against side of cage. 4:07 P.M.: Has convulsion; tonic followed by clonic spasms; episthot-

onos; pupils contracting; breathing in short gasps; lies on side; cannot be aroused; palpebral reflex absent. 4:10 P.M.: Stretches himself every thirty seconds (about); these attacks are undoubtedly convulsive; during interval is quiet. 4:18 P.M.: Attacks come on regularly and are accompanied by a peculiar grunting sound. 4:24 P.M.: The last attack was of longer duration than the others; the abdominal muscles are contracted: the front and hind legs are drawn together; the fore legs tremble while the hind ones move up and down. 4:28 P.M.: Panting; mouth open; stretching precedes the convulsive attacks, which are becoming more marked. 4:30 P.M.: Violent convulsion; death. Postmortem examination eight hours after death: 55 cubic centimetres of amber fluid of specific gravity of 1022 found in abdominal cavity; abdominal vessels injected; organs normal in appearance; postmortem discoloration of abdominal wall on left side."

Other experiments might be quoted, but the foregoing are sufficient to demonstrate the presence of an active poison. A hint as to the real nature of this poison was given me one day while watching an experiment made upon a guinea-pig by my friend Dr. B. K. Rachford. Dr. Rachford had isolated a substance which responded to all the tests for paraxanthin and had injected some minims of it into the abdomen of the animal. The subsequent behavior of the animal in stupor, convulsions, and death corresponded so closely with that shown in rabbits under experiment with simple concentrated urine of pregnant women in my own laboratory that the conclusion that we were working with the same poison seemed unavoidable.

However enticing such a view may be, it can scarcely be formulated into established fact, and consequently, for the present at least, we must acknowledge that we do not know what the real nature of the poison is. But while this is true, it is not too much to say that the poison is not of the nature of a fibrin ferment, a thrombus-producing substance, as Volhard<sup>12</sup> seems to think possible. The prolonged boiling, as used in my experiments, would probably destroy any such ferment.

Before leaving the subject of this research work it will not be out of place to call attention to two facts. In Experiment 1 a rabbit of  $4\frac{1}{2}$  pounds weight was killed by the injection of 110 cubic centimetres in two and three-quarter hours. If, therefore, the woman from whom this urine was taken passed 1,500 cubic centimetres of it in twenty-four hours, enough

poison would have been eliminated in that time to kill about 59 pounds of animal, or enough in two days to kill 118 pounds of animal. Hence if human tissue be as susceptible to the poison as is rabbit's tissue, a woman of average weight would be killed by the poisons generated in her own system in forty-eight hours. It may be remarked here in passing that rabbits are peculiarly subject to the effects of poisonous materials; that they do not belong to the same class of animals as human beings. One element of uncertainty here enters into all experiments heretofore made. The writer made a few experiments on rats and mice and found that similar effects were produced in them, but he does not care to go on record as claiming much for these experiments, as they were too few in number.

If now the human urine contains a poison or poisons which are sufficient to produce convulsions and death in rabbits when injected in sufficient quantities, there should be some evidence to show that this poison was present in the system. Such evidence is found in the following experiments. Tarnier and Chambrelent<sup>14</sup> made experiments with blood serum taken from pregnant women in whom eclampsia had occurred. The method of procedure was to bleed the patient, collect the serum, and inject it under aseptic precautions into the auricular vein of the rabbit. Urine from the same patients was likewise used. These experiments showed that while normal serum of the non-pregnant is toxic in quantities of 10 cubic centimetres to kilogramme of animal (Rummo<sup>15</sup>), the serum of eclamptics is toxic in quantities of from 3 to 4 cubic centimetres per kilogramme. At the same time the urine showed a diminution in toxicity as compared with Bouchard's experiments. The investigators felt justified in drawing the following conclusions:

1. Toxicity of urine in eclamptics is in inverse proportion to that of serum.

2. This toxicity was not due to any medication which had been used.

3. Toxicity of serum seems to be in direct ratio to the gravity of illness. Prognosis depends upon it.

4. Toxicity of serum renders diagnosis of eclampsia exact.

Ludwig and Savor<sup>11</sup> found that "the pregnant organism is saturated with poisonous final products resulting from tissue metamorphosis, or is at least predisposed to an overloading with such products, because its blood serum is more poisonous than that of the non-pregnant, while the urine is decidedly less poisonous. The blood serum of eclamptics is still more poison-



ous than that of normal pregnancy; the urine, on the other hand, at the time of increased toxicity of the serum, is much less poisonous than the normal."

They demonstrated that in the period immediately following an eclamptic attack the urine became much more poisonous than it had been before the attack. The toxic coefficient of serum in normal pregnancy is 9 cubic centimetres per kilo, while that of serum from eclamptics averaged a little less than 6 cubic centimetres per kilo. Confirmation of these figures would warrant the following conclusions: Toxicity of normal serum from the non-pregnant (Rummo), 10 cubic centimetres; that of normal pregnancy (Ludwig and Savor), 9 cubic centimetres; that of eclamptics, less than 6 cubic centimetres per kilo. It is only fair to state that Volhard's<sup>12</sup> experiments seem to show that Ludwig and Savor's figures are not correct; that even by their own showing the toxicity of serum from normal pregnancy was 10.65 cubic centimetres per kilo, and that even this was slowly poisonous; while Rummo's coefficient was based not only upon the toxicity itself, but also upon the rapidity of action of the poison. Volhard's experiments further show greater variation in the quantity of serum necessary to produce poisoning and death, in one case 12.8 cubic centimetres per kilo, and then only after twenty-four hours. His conclusion is that the serum of eclamptics is not more poisonous than that of normal pregnancy. A possible explanation of this difference may be found in the fact that Ludwig and Savor demonstrated that the urine of eclamptics showed a greater toxicity after an attack. If this be true, then the serum must at that time be deprived of much of its toxic character and would consequently show a diminished toxicity. This seems to the writer a matter of great importance and one which should be taken into consideration in all experiments with serum. That there should be great variations in toxicity of both urine and serum would seem to be a necessary condition, especially if the poison be due to imperfect oxidation of tissue or waste material. Thorough evacuation of the bowels, free emission of urine, profuse sweating, limited ingestion of indigestible food and of meats, and the contraries of these, would of necessity control the quantity of poisonous material thrown out or retained. A careful examination of Ludwig and Savor's work will show that in many instances their conclusions are correct, in spite of Volhard's criticisms.

Volhard's real result consists in the demonstration of a con-

dition of thrombosis in the blood vessels after the injection of urine and serum into the blood stream. To this thrombus-producing element he attributes the convulsions and death. It is safe to say that work done up to the present warrants the conclusion that the serum of eclamptics is more poisonous than that of normal pregnancy, and the retention theory holds. It was to avoid just such possibilities that my investigations were instituted, for thrombi could hardly occur in the intra-abdominal method, and a fibrin ferment could scarcely survive the prolonged boiling.

While one is not justified in formulating any theory from so few experiments as I made, and especially since no work was done with eclamptic urine or serum of any kind, still a few facts stand out so clearly that they may at least be urged as a possible basis for a theory. In my experiments the urine of women in the last months of pregnancy showed a decided toxicity for rabbits; the poison was very soluble and evidently was not affected by extreme heat; it was rapidly absorbed through the peritoneum without producing marked lesions in that peritoneum or the organs which it covered—without, indeed, producing appreciable lesions anywhere. It is not a poison which might be produced by change in the urinary constituents because of boiling (potassium), as Davis<sup>16</sup> suggests in reviewing my work, for the reason that in my first experiment the urine was practically unchanged, as it was not even boiled, and yet it killed in a comparatively short time and in comparatively small doses.

The fact, therefore, that there is such a poison in the urine of all persons—that every one is trying to poison himself, as Bouchard says—gives warrant for the belief that if enough of it were retained in the system death would always result. What, then, is the condition of the pregnant woman which might favor such retention? The following statements are of interest in this regard: Saft<sup>17</sup> demonstrated that of 187 primiparæ, 60, or 32.08 per cent, and of 119 multiparæ, 27, or 22.6 per cent, had albumin in the urine; while Fischer<sup>18</sup> showed that during the second half of pregnancy (in 45 primiparæ and 25 multiparæ) there were found in the urine: 1. Constant elements: leucocytes, partly single, partly cylindrical, or in last two months of pregnancy as covering (Beleg) to hyaline and granular cylinders. 2. Abnormal elements: tolerably frequent occurrence of red blood corpuscles, hyaline, granular, and epithelial cylinders (cylindroidal); primiparæ, 20 times red cor-



puscles, 9 times granular corpuscles; multiparæ, 11 times red corpuscles, 14 times granular corpuscles. 3. In proportion to other urinary sediments there is a remarkably frequent occurrence of bladder and kidney-pelvis epithelium, uric acid crystals, pure uric acid, indigo crystals, coffin-shaped crystals, and fat drops. 4. In one sediment there were numerous leucin and tyrosin crystals.

It is further to be noted: (a) The constant elements increase remarkably in last four or five weeks of pregnancy, the abnormal chiefly in last eight days. (b) These elements disappeared gradually after birth; the urine became normal in from two to ten days, except when chronic nephritis was present. (c) During first half of pregnancy these cases (fourth lunar month) showed, after repeated examination, *no elements*. (d) Albumin was positive in one-half the cases.

The constant passage of poisonous material through the kidneys would either cause the foregoing disturbances or naturally increase them, and as a consequence more work would be thrown on the other organs of elimination; the liver, that great toxin destroyer, would have more work to do, irritation and inflammation would be apt to result therein, and the work of elimination be still more impeded.

That this is the way in which eclampsia is brought about is clearly indicated by the changes which are found in the liver of eclamptics. In 15 cases of eclampsia, Schmorl<sup>19</sup> found constantly, besides the well-known kidney lesions, numerous necrotic masses in the liver, which he divided into hemorrhagic and anemic. In the majority of the cases there were hemorrhages into the brain, and in 5 cases necrosis in pancreas and heart muscle. Further, in all cases were found parenchymatous emboli, which originated partly from the liver, partly from the kidneys, and partly from the placenta. Finally, in four children born of eclamptic mothers were found decided parenchymatous changes in the kidneys. All of these changes Schmorl attributes to an unknown poison circulating in the maternal organism.

Massin<sup>20</sup> states that he found in women who died during eclampsia decided parenchymatous changes in liver, kidneys, and other organs, all showing a severe general poisoning and consequent lessening of function. Thus the whole case may be summed up as follows:

1. Poison constantly circulating in blood and being thrown out by kidneys.

2. Disposition on part of kidneys to albuminuria and nephritis when pregnancy exists.

3. When poison is in excess there is a disposition to disease of liver and other organs.

4. Hence diminished elimination and consequent disposition to retention of poisonous materials in the blood.

5. Consequent tendency toward eclampsia.

*Treatment.*—If the premises already stated be correct, the treatment must have for its main object free elimination, with the hope of thus freeing the system of the poisonous substances. Naturally, therefore, the treatment is divided into prophylactic and that of the emergency or attack. In the pregnant woman the prophylactic treatment is of particular importance, because experience teaches that in all cases except those in which chronic nephritis exists free elimination prevents the eclamptic attacks. Although it has not been demonstrated, there is strong presumptive evidence that the poison is essentially a product of imperfect digestion. For this reason it is of importance to keep the emunctories in order, but it is of especial importance to regulate the amount of meats because of the presence therein of the xanthin bodies, which are especially toxic in character. Aside from the statement of this fact, it hardly seems necessary to dwell upon the methods of assisting elimination. One is warranted in again calling attention to the value of estimating the quantity of urea antepartum (Davis<sup>21</sup>), and of taking active measures to increase elimination when the percentage falls below normal—say, twelve grains to the ounce.

The treatment of the attack has been limited to the therapeutic and the surgical, the former including morphine, chloral hydrate, veratrum viride, chloroform inhalations, etc., etc., and the latter including forcible dilatation of the cervix, version, lateral incisions of cervix, and forceps. Both sides have strong and earnest advocates, and the fight has been a bitter one, especially between the two leaders, Dührssen and Charpentier. A careful review of the controversy shows that the real question at issue is whether the patient shall be delivered at once upon the occurrence of eclampsia, no matter what the stage of pregnancy may be, or shall we try the therapeutic method first and resort to the surgical only when the first-mentioned has failed.

Perhaps Veit's words are the correct ones, "there is no absolute rule," but at the same time if the theory of faulty elimina-

tion be the true one, the conclusion is inevitable that failure to control the attacks by therapeutic measures necessitates the induction of surgical procedures. The one who interferes the most and the soonest, Löhlein,<sup>22</sup> has reduced the mortality among eclamptics to 19.38 per cent (325 cases), while Green,<sup>23</sup> whose efforts are largely therapeutic, has a mortality of 25 per cent. One remark which Green makes is of importance: "They were all bad cases, cases which had been neglected before being sent to the hospital." If neglect made bad cases, the deduction is fair that prophylaxis makes good ones, and the conclusion is not strained that active interference, if not too long delayed, would also make good ones. Proof of this last statement is to be found in Krönig's<sup>24</sup> results. Krönig treated 18 cases with accouchement forcé and had only one death, or 5.5 per cent.

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A CASE OF MIXED PUERPERAL AND TYPHOID INFECTION IN  
WHICH THE STREPTOCOCCUS AND THE TYPHOID BACILLUS  
WERE ISOLATED BOTH FROM THE BLOOD AND THE  
UTERINE CAVITY.

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IN a recent article on a case of puerperal infection in which the bacillus typhosus was found in the uterus, Dobbin claims that he has been unable to find a reported case in which the typhoid bacillus was isolated from this position. It therefore seems worth while to put on record a case of a character similar to his, in which death was followed by an autopsy which demonstrated both the lesions of typhoid fever and those of puerperal sepsis.

Dobbin's case was that of a woman, age 24, admitted to the Johns Hopkins Hospital complaining of fever following confinement. She had been delivered by a midwife, and was found on the second day of the puerperium with a temperature of 103° F. accompanied by bronchitis. The fever and general symptoms did not improve, on removal of some retained placenta, and she entered the hospital on the fourth day of the puerperium. On her entrance to the hospital her temperature was 103.1° F., and the physical examination showed a papular eruption over the lower thorax and abdomen, which in places simulated rose spots. No enlargement of the spleen was noted. The uterus was enlarged and movable. There was iliac gurgling and slight tympanites. There was an irregular fever, running as high as 107° F., for eight days after admission, but this gradually declined from the fifth day. A well-marked Widal reaction was present during the later stages of the disease. Cultures from the uterus showed the streptococcus pyogenes, the staphylococcus pyogenes aureus, the bacillus typhosus, and an unidentified anaerobic bacillus. The case of Kühnau, mentioned by Dobbin, resembled our case somewhat in that it was a case of typhoid septicemia occurring during the puerperal period. In this case, however, no intestinal lesions were present, and the bacillus typhosus in pure culture was the

causal agent. The following is an account of the case which we wish to report.

We are indebted for the history of the case to Dr. W. H. Happel, of Albany, N. Y., in whose practice it occurred. The history is necessarily somewhat incomplete, as the doctor was not called in until the woman was in a practically moribund condition.

J. Y., married, age 34. The family history was not obtainable. The past history is one of perfect health. The patient had been confined three times previously by Dr. Happel and had always had normal labors without puerperal accidents of any kind. During the present confinement, which was more protracted than was usual in her case, she was attended by a midwife. For the first six days after delivery the patient seemed in perfect health, and at noon on the sixth day ate a hearty dinner, after which she expressed a desire to get up, but was dissuaded from doing so by her husband and mother. At 3 P.M. the same day the family noticed that she was breathing rapidly and that her speech was somewhat incoherent. She was first seen by Dr. Happel at 7 P.M. on the same day (September 24). At that time she was delirious and semi-comatose. The doctor was able to arouse her sufficiently to answer one or two questions in monosyllables and to recognize him. She rapidly sank into her previous condition on being left alone, and constantly picked at the bedclothes. The face at this time was Hippocratic, and later became somewhat cyanotic. The pulse was 120; the tongue almost black and swollen to two or three times its normal size. The temperature, taken by the mouth, registered 100.8° F., though it was extremely difficult to get a satisfactory temperature on account of the restlessness of the patient. The heart and lungs seemed normal. The abdomen was greatly enlarged, but nowhere tender. The liver dulness reached one-third of the way from the costal margin to the umbilicus. The spleen dulness was much increased. The uterus was as much contracted as would normally be the case thus soon after labor. The urine was constantly passed involuntarily. Bowels constipated. Scattered thickly over the chest and abdomen was a fine, papular rash, which for the most part resembled an ordinary heat rash; in places, however, the papules were very suggestive of rose spots. From the time of the first visit the patient gradually sank, becoming more comatose, and on the evening of the following day was so evidently moribund that a proposed curetting for the purpose of



clearing out the uterus was abandoned. She died at 9 P.M. on September 26, a little over forty-eight hours from the beginning of the illness. The child is alive and well, and has showed no signs of any illness resembling typhoid fever.

The autopsy was made on September 27, fourteen hours after death. The weather had been extremely warm and oppressive for some days and no special attempt had been made to preserve the body. The following notes are abstracted from the autopsy protocol:

Body of a strongly-built, well-nourished woman, 170 centimetres in length. Rigor mortis well marked. Marked lividity of the face, chest, and dependent parts. Skin over the upper portion of the chest has a greenish hue, and above the clavicles marked crepitation can be felt in the subcutaneous tissue; this can also be observed in the subcutaneous tissue over the back. The abdomen is immensely distended. Quantities of bloody froth exude from the nose. The subcutaneous fat is large in amount. Muscles normal in appearance. On cutting into the subcutaneous tissue of the neck a large vein is punctured, from which gas escapes with a rushing sound and numbers of bubbles are formed. On opening the abdominal cavity the escape of gas is so forcible that an alcohol lamp, held over the puncture for the purpose of testing the explosibility of the gas, is extinguished. The peritoneal cavity contains a small amount of blood-stained fluid, most abundant in the pelvis. Both layers of the peritoneum are smooth. The pericardium is normal.

The heart shows no changes, either in the endocardium or valves, beyond marked blood-staining. The cavities of the heart contain a very small quantity of frothy blood. The heart muscle is extremely flabby and shows marked evidence of post-mortem change; coronaries patent, intima blood-stained.

Both lungs show a few subpleural hemorrhages; they are somewhat congested, but otherwise normal. The mucosa of the bronchi is congested and they contain frothy mucus. Pulmonary vessels are free from clot.

Spleen is adherent to the abdominal wall by moderately firm adhesions. It measures 14x10x6 centimetres. Capsule is smooth; consistence flabby. Crepitation can be felt throughout the organ. On section it is of a deep chocolate-brown color, diffuent, and gas escapes from the cut surface. None of the finer details of structure can be made out.

Liver is free from adhesions; measures 35x26x15 centime-



tres. The surface is smooth and thickly dotted with yellowish areas, in the centre of which may be seen gas bubbles. The organ crepitates over its superior two-thirds. On section the cut surface of the superior two-thirds of the organ is reddish-brown in color and has a honeycombed appearance, being riddled with small holes from two to four millimetres in diameter. The inferior third of the organ has a cloudy appearance and does not show the finer anatomical details. It rapidly becomes covered with foam after section.

Gall bladder contains a small amount of bile. The walls are normal.

Kidneys: Both kidneys present the same appearance. Capsule strips off easily. The organ is soft and on section shows evidence of postmortem change. The finer details are blurred and there are present in the cortex numerous pinhead, yellowish areas which seem to be made up of collections of gas bubbles.

The stomach, esophagus, adrenals, pancreas, bladder, and vagina show no marked changes.

The uterus measures externally 17x13x6 centimetres. It is extremely flabby to the feel. The peritoneal surface is smooth, glossy, and free from adhesions. The cervix is ringed around with a series of small cysts with reddish, clear contents. The distinction between the cervical and corporeal portions is obliterated as far as the cavity of the organ is concerned. The much enlarged cavity is lined with a smooth, deeply congested membrane, to which are adherent here and there pieces of brownish pseudo-membrane, which are apparently partly decolorized clots. In the fundus on the right side is a mass of adherent material over an area 7x5 centimetres in extent. It is of a red-brown color, the external portion being apparently made up of clotted blood, and the portion next the uterus of grayish-white material, either decolorized clot or placenta.

Intestines: The small intestine is considerably distended with gas. The duodenum is markedly bile-stained. In one or two places its mucous membrane is lifted up by gas over areas of about two centimetres in diameter, with the resulting formation of small gas cysts. Throughout the jejunum and the ileum similar cysts, fifteen or twenty in number, are to be seen. The Peyer's patches and solitary follicles show absolutely no abnormality until a point twenty centimetres above the valve is reached. At this point is a markedly swollen Peyer's patch containing one or two small areas of ulceration capped by

yellowish, necrotic material. Immediately above the valve the intestinal mucosa shows great thickening from a diffuse swelling of the lymphatic apparatus, and here also are a number of similar ulcerated areas capped by necrosis. The large intestine shows no changes beyond pallor of the mucosa. The mesenteric glands, especially those near the head of the cecum, are greatly swollen and softened; on section they are of a purplish color and contain many small, circular gas cavities. The veins composing the venous plexuses leading from the uterus are all immensely dilated with gas and contain practically no blood. These dilated veins form large masses, the single veins averaging in diameter the size of an ordinary lead pencil.

*Anatomical Diagnosis.*—Typhoid fever (end of the first week); swelling and necrosis of Peyer's patches in the lower end of the ileum; acute spleen tumor; subinvolution of the uterus with partial retention of the placenta; puerperal septicemia (streptococcus); postmortem changes in the heart muscle, spleen, liver (*Schaumleber*), and kidney; multiple gas cysts in the small intestine; emphysema of the subcutaneous tissues of the neck and back; general infection with the bacillus *aerogenes capsulatus* (?).

*Microscopic.*—The sections from the heart show postmortem change, the nuclei staining poorly and the muscle cells being blurred and often fragmented. The lungs show scattered patches of emphysema, and in places a small amount of granular exudate and a few red blood cells or desquamated epithelial cells in the alveoli. The sections from the spleen show marked postmortem change, the nuclei staining poorly or not at all in many places. Large, regular holes with sharp edges are to be seen in the organ here and there, doubtless caused by the gas, which could be made out in the fresh specimen. In areas where the tissue still stains fairly well two classes of lesions can be made out, a great increase in the number of red corpuscles in the pulp, and definite areas of necrosis. The red corpuscles usually lie in the blood spaces of the pulp, but at times are enclosed in large cells. The necrotic areas are sharply defined and usually roughly circular or oval; they contain a few polymorphonuclear leucocytes and an occasional small round cell. The sections of liver also show in places marked postmortem changes, as indicated by lack of staining or poor staining of the nuclei and partial or complete disintegration of the protoplasm. The honeycombed portion of the organ described under the gross changes is made

up of a series of fairly regular cavities, between which lies moderately well-preserved but often compressed liver substance. The openings are of varying size, the largest occupying five or six fields of the low power of the microscope, the smallest being not much larger than a liver cell; they are usually empty or contain a little granular pink-staining material. Their edges are clear cut, and as a rule the liver cells lying immediately about them show no change; in places the row of liver cells immediately surrounding the opening is necrotic, but this is the exception. Where the liver substance between the openings is fairly well preserved it shows definite changes in the form of focal necroses. These are similar to those described in the spleen, sharp-cut, almost circular or oval in shape, and containing an occasional polymorphonuclear or small round cell. The necrotic material stains sharply with the eosin, and the areas are exactly similar to those usually met with in typhoid fever. The postmortem changes in the kidneys are so extensive that the structure of the organs can be but dimly seen; many gas holes are present in these organs also. The lesions in the single swollen Peyer's patch consist of great swelling and extensive necrosis; practically no normal lymphoid structure can be made out, the swollen tissue consisting of pink-staining necrotic material containing a few lymphoid cells, some cells of an epithelioid type, and many nuclear fragments. The walls of many of the vessels in this area show hyaline change, and some vessels contain hyaline thrombi. The intestinal wall in the diffusely thickened area just above the valve shows similar changes, as do the mesenteric glands, which show besides many gas holes. Sections through the uterus and adherent material at the fundus show marked postmortem change. The adherent material is mostly blood clot. In one or two places small islands of placental tissue can be made out in it. Many large gas holes are present in the uterine musculature and in the deeper parts of the clot. Sections of the different tissues stained by the Weigert method show two kinds of organisms—large, thick bacilli with rounded ends, and small cocci occurring in pairs or short chains. The bacilli are found all through the tissues, most abundantly in connection with the gas holes described in the various tissues. The cocci are few in number; they seem generally to be in the blood vessels and could be made out in the uterus, liver, spleen, lung, and kidney. In sections stained by Flexner's gentian violet method a small number of rather short, thick

bacilli can be made out in the liver, spleen, mesenteric glands, and swollen Peyer's patch, and also in the clot in the uterine cavity.

*Bacteriologic.*—The cover slips from the blood show many long, thick bacilli, occurring singly or in pairs, or more rarely in chains in which the individual bacilli can generally be made out. With ordinary staining no capsule can be made out; definite spores are present in a few places. Besides these large bacilli there are present short, moderately thick bacilli and cocci in long chains. In the cover slips from the uterine cavity similar organisms were present, but here some of the large bacilli seemed to be distinctly encapsulated.

Cultures were made at the autopsy from the blood, lung, liver, spleen, kidney, mesenteric gland, and uterine cavity. Anaerobic cultures were made from the blood and the uterine cavity. The cultures from the blood, liver, and spleen showed each of them two similar organisms: (1) a moderately short, moderately thick bacillus, which sometimes stained rather unevenly with the ordinary dyes, and which decolorized with Gram; (2) a medium-sized coccus, occurring in pairs or chains, and not decolorized by Gram. The bacillus grew well on most media, both in the thermostat and at room temperature, more slowly under the latter conditions. It produced a diffuse, semi-translucent, slightly elevated, gray growth on agar. Gelatin was not liquefied, the growth along the stab being delicate. Bouillon was evenly clouded, and examination showed the organism to be actively motile. Litmus milk was at first slightly acidified; when kept in the thermostat for three weeks, however, the milk became slightly alkaline again, but was never clotted. On potato an almost invisible, slightly yellowish growth was produced; the potato looked as if it had been varnished. No indol formation could be made out. There was no gas formation on sugar media. Staining for flagella by Pittfield's method showed from nine to twelve flagella to each organism with the peri-trichal arrangement. Clumping and loss of motion were observed by the use of the Widal test in dilutions of 1:30 to 1:50.

The coccus grew on all the usual media. On agar it produced discrete, pin-point-sized, gray, almost invisible colonies. It did not liquefy gelatin. In bouillon a slight precipitate was formed which contained the organism in chains. Litmus milk was acidified and coagulated. No growth was apparent on potato, but cover slips showed that the organism had increased

on the medium. The two organisms were identified as the bacillus typhosus and the streptococcus pyogenes.

From the culture from the lung the streptococcus alone was isolated; from the culture from the mesenteric gland the bacillus typhosus alone. The culture from the kidney showed the streptococcus and a short, fat bacillus which gave colon reactions. The culture from the uterine cavity showed the bacillus typhosus, the streptococcus pyogenes, and two other bacilli, one similar to that isolated from the kidney and a longer, slimmer bacillus. The short, thick bacillus, isolated also from the kidney, decolorized by Gram. It grew on all culture media. On agar it produced a profuse, even, gray layer. Gelatin was not liquefied. Bouillon was evenly clouded, the organism being slightly motile in fresh cultures. There was a profuse, yellowish-brown growth on potato. Indol was present in three-day-old Dunham cultures. There was abundant gas formation on glucose, lactose, and saccharose media. Litmus milk was acidified and coagulated. The organism was identified as the bacillus coli communis. The slim bacillus from the uterine cavity behaved almost like the organism just described; on potato, however, it gave off a strong odor of trimethylamine, and it liquefied gelatin. It was identified as the proteus vulgaris. The anaerobic cultures from the blood and the uterine cavity both showed a good growth, but no gas formation. Cover slips made from these tubes showed streptococci and many short bacilli, but hardly any of the large, thick bacilli which were so prominent in the cover slips from these two localities could be made out. Several attempts were made to isolate this large bacillus from the cultures, but all were unsuccessful. It was apparently completely overgrown by the streptococcus and the bacilli. Judging from the appearances of the body at the postmortem (gas in the vessels, *Schaumleber*, etc.), the appearance of the sections, and the morphological appearances, this organism was probably the bacillus aerogenes capsulatus.

In connection with the clinical aspects of the case, the sudden appearance of the symptoms was peculiar, when, judging from the pathological appearances, the typhoid fever had lasted at least a week, and the uterine condition probably since the birth of the child. The extremely rapid course of the illness was to be expected as a result of such a marked septic condition; cases of pure typhoid septicemia often have a rapidly fatal issue, with a preponderance of nervous symptoms, such



as occurred in this case; and, as Vincent and others have shown, where a streptococcus infection complicates typhoid fever the course of the disease is exceptionally rapid and fatal. Within the past two years we have autopsied two cases of typhoid fever in which death occurred after only a few days' illness with intense nervous symptoms; one of these was a case of pure typhoid septicemia, the other a case of streptococcus septicemia complicating typhoid. The intestinal implication in this case was so slight that one would think of the possibility of the infective agent having been introduced through some other than the usual channel, perhaps through the uterine cavity at the time of the birth of the child. Careful inquiry revealed the fact that no case of typhoid fever had occurred in the house during the occupancy of the patient's family, and, further, that the midwife had had nothing to do with any typhoid cases. The opportunity for observation of the patient was so scant that no very clear conception of the clinical course could be made; nevertheless the condition was so suggestive of typhoid that a tentative diagnosis of that disease was made. It seems almost certain that besides the general infection with the streptococcus and the typhoid bacillus, a general infection with the bacillus aerogenes capsulatus was also present; the subcutaneous emphysema and the intestinal gas cysts, the gas in the serous cavities, the *Schaumorgane*, and the morphology of the large bacilli found in the cover slips and the sections—all speak for this. As already mentioned, the organism either died out or was overgrown in the anaerobic cultures and we were not able to isolate it. Considering the conditions under which the body was kept before the autopsy, it seems probable that the organism was merely a postmortem invader and had nothing to do with the fatal issue of the case; the probability of its presence is merely mentioned in view of the relatively large number of observations which have been made in recent years in which its occurrence has been noted in puerperal conditions.

BENDER HYGIENIC LABORATORY.

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TWO CASES OF SACRO-ILIAC DISEASE IN PARTURIENT WOMEN.<sup>1</sup>

BY

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Philadelphia.

THE following cases of sacro-iliac disease in parturient women illustrate two phases of the pathology of this affection and draw attention to the treatment of this condition.

Mrs. S. B., age 25, a Russian, came into her first labor on September 8, 1898. She was under the care of a physician, who diagnosticated a vertex presentation. As the progress of labor was unsatisfactory a consultant was summoned, and, after the patient had been in labor forty-eight hours, efforts were made to deliver her with forceps. Strong traction was employed, with lateral movements of the forceps also. The fetal head, however, would not descend, and, failing to deliver the patient, a message was sent to the Jefferson Maternity requesting her admission. She was brought in by ambulance as soon as possible.

On admission she was examined, in my absence, by Dr. Stricker Coles, Demonstrator of Obstetrics in the Jefferson Medical College. The fetus was dead, the cervix greatly swollen, the patient's pulse and temperature considerably elevated, and shock was present. Dr. Coles performed craniotomy, extracting a child weighing ten pounds. On measuring the patient's pelvis the following was obtained: anterior superior spines, 24 centimetres; crests, 27 centimetres; trochanters, 28½ centimetres; left diagonal, 21 centimetres; right diagonal, 22 centimetres; external conjugate, 19 centimetres. The placenta was manually removed and the uterus thoroughly douched and packed with antiseptic gauze. As the pelvic floor was extensively lacerated, as many stitches as the patient's condition justified were taken and she was freely stimulated. She was very ill for a number of days, being septic, but recovered.

When she had gained control of the functions of the bladder

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, November 17, 1898.

and rectum, an examination of the pelvic organs was made. It was found that the cervix was largely closed by the contraction of cicatricial tissue. The womb was movable, its motion somewhat limited by adhesions, while its involution was not complete. A considerable part of the vagina and surrounding tissue had sloughed away, leaving an extensive contracting surface. So soon as the patient tried to leave her bed or tried to sit up she complained of obstinate pain in the left hip, radiating down the thigh and particularly referred to the left sacro-iliac joint. She made strenuous efforts to get about, as she earnestly desired to go home. She succeeded on several occasions in walking, but each effort was followed by increased pain, and she was finally obliged to desist.

On examination increased mobility in the pelvis could not be detected. The location of the pain, however, was positive, and pressure on the surrounding tissues, which brought a strain upon this joint, was invariably followed by greater pain. After observing the patient carefully for ten days, it was evident that the pain was steadily increasing and that she could not even sit up with comfort.

Dr. H. Augustus Wilson, Clinical Professor of Orthopedics in the Jefferson Medical College, was asked to see the case in consultation. He confirmed the diagnosis, and, as the patient's pulse and temperature were normal and no evidence of abscess existed, he advised treatment by immobilization. He accordingly put the patient at complete rest in an iron frame, supporting the entire body, and she is at present in the Maternity under his treatment.

From the time this patient was put in the apparatus her pain ceased, thus demonstrating the fact that a definite cause existed for her suffering.

Mrs. F. L., age 24, a Cuban, was seen by me at her residence in 1896. She was in bed, seven and a half months in her fourth pregnancy, and was under treatment by a physician for rheumatism and sciatica.

Her family history was negative. She had been fairly well, had borne three children in easy labor, and during a large part of her life had lived in Cuba. Her illness had come on gradually and had been characterized with intense pain over the sacro-iliac joint and down the thigh, attended with considerable swelling of the entire left lower extremity. When I saw her she had been given narcotics freely and was in a condition of partial delirium from pain and opium.

It was impossible to thoroughly examine or treat her in her home, and at her request she was transferred by ambulance to the Jefferson Maternity. On examination a large bedsore was found over the sacrum. Over the left posterior surface of the pelvis the tissue was swollen and painful on pressure. Movement of the lower left extremity in such a way as to bring tension upon the pelvis was accompanied with intense pain. The fetus was living, in the first position, vertex presentation. On vaginal examination, at the region of the utero-sacral ligament of the left side there was a mass of thickened tissue in which no fluctuation could be found. The cervix was thick and resisting.

The left lower extremity was three-quarters of an inch shorter than the right. The pelvic measurements were as follows: Anterior superior spines,  $24\frac{1}{2}$  centimetres; crests, 27 centimetres; trochanters, 32 centimetres; diagonals, each 22 centimetres; external conjugate,  $19\frac{1}{2}$  centimetres. The lower bowel was full of hardened and impacted feces. The patient stated that her bowels did not move for four or five days, and the bowel had evidently not been unloaded for much longer. The urine was albuminous and contained granular casts. The patient was toxemic and in a highly nervous condition. After the intestines had been emptied labor was induced and a living child delivered with forceps. Under an anesthetic the patient was examined thoroughly at the time of labor, and the thickened tissues about the sacro-iliac joint of the left side were clearly determined. She recovered well from labor, but could not nurse her child, which was accordingly weaned.

Dr. Wilson was asked to see the case in consultation and confirmed the diagnosis of sacro-iliac disease and was inclined to think it tubercular. The patient was transferred to his wards in the Jefferson Hospital, and was put at rest in the apparatus to which reference has already been made.

She apparently recovered, and was seen at her home about eight months ago in good health. On yesterday, however, she was again seen and stated that she was five months pregnant. The same swelling in the left lower extremity and similar pain at the left sacro-iliac region are again developing. She will enter the Maternity for confinement.

It is evident from the structure of the pelvis that in severe labor the sacro-iliac joints must be subjected to considerable strain. That limited motion is present in these joints during difficult labor has been ascertained in cases delivered by

symphyseotomy. But twice in my experience of eight symphyseotomies, at the time of delivery after the symphysis had been opened, the left sacro-iliac joint distinctly yielded during the passage of the head. In neither of these cases, however, did the slightest inconvenience follow, and the patients recovered perfectly.

If, however, these joints are sometimes injured under careful delivery after the symphysis has been opened, it is not strange to find that under violent efforts at extraction these joints may be subjected to severe strain. That the left should be the one usually injured is natural when we consider the fact that in most cases of labor the left half of the pelvis bears the brunt of impact during the descent of the fetus. The first case reported is readily understood by reference to the efforts made at delivery and the septic infection which accompanied the labor.

In Case 2 the etiology is obscure. This patient had never had a difficult labor, hence mechanical strain is not present as a factor. A reasonable explanation of this case seems to be that obstinate constipation and resulting congestion and inflammation of the tissues about the impacted descending bowel caused the thickening and finally the joint implication so clearly evident. The condition of pregnancy, by causing congestion and thus furthering the development of bacteria, is evidently responsible for her present pain.

That the contents of the intestine may produce pelvic inflammation is not an uncommon observation. The bacillus coli communis and allied germs have been proved to be the causes of peritonitis. Cases of obstinate pain in pregnant and non-pregnant patients have been not infrequently relieved by thorough emptying of the bowel.

250 SOUTH TWENTY-FIRST STREET.

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## THE FREQUENCY OF PELVIC DISORDERS IN INSANE WOMEN.

BY

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At the Eastern Michigan Asylum it is routine practice to subject every newly-admitted patient to a thorough physical examination and carry out many of the measurements and

details of the Bertillon system. The first of these examinations is undertaken for a twofold purpose: for determining the presence of physical defects, injuries, and ailments, in order that the institution may be protected against unjust criticism and accusation in the event of immediate or future accident in the individual case; and to obtain all possible information regarding the patient's somatic condition, with reference to the most suitable treatment to be inaugurated for the restoration of mental health and physical improvement.

For more than a decade past the investigation of the pelvic organs in women has been under my own immediate supervision, and in a fluctuating population of more than five hundred resident female inmates in this institution alone the experience acquired in this line of gynecological practice has been no inconsiderable one.

The statement is often made by those having this unfortunate class of sufferers under their care that local disorders among their female patients are rarely if ever met with, and alienists have generally sought to ignore or deny the influence of pelvic disease upon the higher nervous centres. Advancing knowledge and increased experience have demonstrated, however, that the insane are as liable to these forms of morbid development as the sane, and absence of information as to the presence of disease is but the admission of failure to look for it and a confession of neglect, while the results of treatment of insane patients thus afflicted have proved beyond a peradventure the intimate relation existing between the female organs of generation and the seat of the mind. The mental unreliability of the insane may be partially responsible for the attitude assumed toward this question by many alienists and have led to the general denial of the importance of the subject, for it is certain that delusions referable to the sexual organs are of very frequent occurrence where no disease of these parts exists. But while in the majority of these patients there are wanting the manifestations which usually accompany pelvic disease, a very considerable number are left who are keenly aware of the source of their discomfort, and who, if their statements will but be accepted, are quite capable of giving a fairly coherent history of their condition and sufferings. In the instance of those who are unable to do this the observing faculties of the trained attendant are called into action, and the latter can soon be in possession of sufficient data to warrant her in directing the attention of the physician to the needs of the patient.

As most of the cases with which I have to deal surgically



are those in whom some lesion of the local organs is known to exist before admission to the asylum, has been discovered at the initial examination, or is brought to my attention later on, in order to determine the relative frequency of abnormal pelvic conditions in the insane I have taken the last one hundred consecutive cases from my notebooks and classified the disorders found according to the parts affected.

These statistics, it is believed, give an accurate presentation of the frequency of local disorders in insane women, and serve to positively refute the assertion that the mentally alienated do not suffer from such conditions.

Total number of cases examined <sup>1</sup> .....	100
Number of cases in which pathological conditions existed (81 per cent.)	81
Age of youngest patient.....	16
"    "    oldest    "    .....	69
Married.....	67
Single.....	33
Parous (cases noted) .....	45
Menstruation (95 cases noted):	
Regular.....	43
Irregular .....	17
Amenorrhea.....	3
Dysmenorrhea .....	1
Menorrhagia .....	4
Metrorrhagia.....	3
Post-climacteric .....	24
Total.....	95
Pudenda:	
Varix of labium majus.....	1
Fibroma molluscum of labium majus.....	1
Perineum, lacerations, varying degree.....	46
Vagina, relaxations, including mild grades of recto-cystocele.....	19
Uterus:	
Hyperplasia .....	5
Retroversion.....	20
Retroflexion.....	6
Anteflexion .....	4
Lateroflexion.....	2
Senile atrophy <sup>2</sup> .....	15
Cervical lacerations, varying degree.....	53
Cervical cystic degeneration .....	5
Erosion of os.....	2
Endocervicitis, endometritis.....	4
Uterine prolapse, partial.....	1
Fibroids .....	1

<sup>1</sup> I am indebted to Dr. Jason Morse, Assistant Superintendent E. M. A., for careful notes of these cases taken at the time of examination.

<sup>2</sup> Not included in total of disorders.



Ovaries and tubes:	
Ovarian enlargement.....	4
"    prolapse ..	1
Tubo-ovarian tumors.....	4
Hemorrhoids, external.....	8
	<hr/>
Total number of pathological conditions.....	198
32 ADAMS AVENUE, WEST.	

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## EXTRAUTERINE GESTATION.<sup>1</sup>

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BY

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IN treating this subject and relating my experiences I will not burden you with a technical description of a condition which, by reason of restricted opportunities for original research, must be entirely borrowed. I am cognizant of the difficulties which confront the busy general practitioner in his efforts to cover the entire medical field and keep in touch with the rapid developments of our present pathology, diagnosis, and treatment of diseases and conditions formerly obscure or at best but half-understood.

Our present subject is no exception to the rule existing in all of Nature's seeming abnormalities; it is but cause and effect, and becomes, under existing conditions, the natural sequence of a mechanical obstruction, the result of congenital or acquired defects in the Fallopian tubes, occasioned either by deposits, adhesions, or paresis of the cilia, favoring the arrest of the impregnated ovum at a point other than its natural site of selection—the uterus.

The subject is of extreme interest outside of its clinical aspect. The erroneous views of the early writers as to the point of fertilization of the ovum were dissipated by the investigations of Hofmeier, who demonstrated that the movement of cilia from fimbria to cervix was downward, and that did not the spermatozoa possess in themselves independent movement, conception would not occur. The fact that spermatozoa have been found in the tubes by Dührssen during his celiotomies, though they were motionless and degenerate, added to the testimony of numerous investigators who have dis-

<sup>1</sup> Read before the Academy of Medical and Surgical Sciences, St. Louis, Mo., November 15, 1898.

covered active spermatozoa not only in the tubes of animals, but also in the peritoneal fluid, as if "lying in wait for the ovum," has given plausibility to the theory that all gestations are probably extrauterine in their inception, and that the period of tubal life is simply preparatory and possibly a necessity for a continuation of its preservation in the uterine cavity. If this theory is correct we can understand the higher responsibilities of the tube as a duct, not alone for the ovum, but also for the oöperm, and that any abnormal condition existing in or about the tubes may be fatal to its safe transit.

With these facts in mind we may well give some thought to those conditions which logically might impair the physiological function of this most important organ, and inquire, as civilization crystallizes, whether ectopic gestation is increasing in frequency to the degree which reported cases would lead us to believe, or whether our diagnostic ability has taken a more advanced position.

We can easily accept both propositions. The medical profession, on account of more intimate association, extended opportunities in higher medical literature and post-graduate schools, stimulates the older men. High preliminary requirements, longer course of study, improved methods of teaching, joined with better facilities for clinical study with our young men, have better fitted all to form a reasonably correct conclusion of conditions which formerly required for their solution the services of an expert.

On the other hand, is it not a fact that the more densely populated centres are more and more exposed to conditions which invite impairment of the female generative organs by reason of abortions, gonorrhea, and their sequelæ, as well as fashion's unreasoning mandates, which far outstrip the progress, rapid though it be, in better knowledge, improved technique, with bold and well-directed efforts in meeting and controlling, not only the diseases, but their results? If it be admitted that our premises are right, what must be our conclusions? Necessarily that in the future ectopic gestation will assume a position of equal importance with that of appendicitis—probably, in time, more so, for with the widespread and continued attacks upon the appendix the race may eventually be denied this useless organ; but we cannot conceive of a continuation of our race without the Fallopian tubes, and if sterility continues to be courted as assiduously in the future, growing in popularity with our women as it has grown during

the past few years, we may not have to wait its full development in the future; we will find it waiting at our door.

It may be that I am unduly influenced in my opinions by reason of my experiences during the past year; and as to whether the cases which I herewith report were a coincident or whether they were the result of a better knowledge and careful investigation of all cases which formerly might have been classified as very mysterious (intestinal colic, heart failure, ovarian neuralgia, etc.), all expressing the degree of inconvenience or severity of the condition or the length of time elapsing after rupture at which patient was seen—I know not, but I do know that my experience has taught me that continued illness may result, or even death ensue, without the attending physician even suspecting the cause. This occurred in three out of four of the cases which I saw, and that is not an exception to the rule. We may note a like error on the part of some noted French physicians, who, in the case of a renowned English actress, discovered a ruptured extrauterine pregnancy only after a postmortem in search of poison.

In CASE A of my series of cases this was inexcusable, as I had made a diagnosis and had fully explained to my patient its nature and effect, but, on account of the fact that it was to her and her friends an unknown condition, I was dubbed an alarmist, and another doctor was called who would give a more—to her mind—logical explanation of her trouble. Some two months elapsed before her condition was understood by the attending physician.

CASE B.—Diagnosis made and preparations for operation at time of rupture; on account of history, which we will touch on later, was postponed. In this one case condition was not verified under the knife.

CASE C, of like nature to B, had passed under five different physicians, covering a period of some three mouths. In this case the patient was prepared for the table under a mistaken theory of causation; operation was advised, however, on account of constitutional infection, result of suppuration in hematoma.

CASE D had passed under observation of two physicians, one a leading practitioner of St. Louis, who had diagnosed intestinal indigestion, emphatically dissenting from diagnosis of extrauterine pregnancy. The correctness of my conclusion was verified two days later when collapse ensued and we were compelled to change places with conditions—instead of our choosing the conditions, the conditions chose us.

Let us take up these cases as they occur in my memoranda, each presenting different phases of possible results in ectopic gestation, but each following laws as unchangeable as the laws of gravitation, depending alone upon the point of arrest and attachment of the oöperm.

CASE A.—Multipara, æt. 27; American; previous health good; married nine years; one child 8 years old. Consulted me at office June 23, 1897, with following history: Menstruation delayed some two weeks; morning sickness and slight griping pain in left hypogastric region; while pursuing usual household duties, was attacked with severe colic in lower abdomen; this condition existed with more or less severity up to the time of my examination. The patient was not confined to bed or house. Rupture had ensued, but was not attended with that degree of shock which usually accompanies it. She was impressed in an indefinite way that she was pregnant and that something was wrong. Even when pains were slight the dread of impending danger was ever with her. Examination elicited tenderness on left side, and by deep pressure, bimanual, I discovered a tumefaction of doughy consistence, seemingly not larger than a small orange. On account of the supersensitiveness of this patient I was not permitted a full investigation. However, with the information then at hand I gave opinion of cause and probable results, reserving a more detailed explanation until patient was more composed. This ended my connection with case. The patient ran the gauntlet of successive ruptures with accompanying local peritonitis, until four and a half months later the conditions demanded immediate interference. The mother survived; the child was alive, but died shortly afterward. From my examination and the description of conditions at time of operation, I judge this to be a case of ventral or tubo-abdominal pregnancy.

CASE B.—Multipara; Scotch; housewife; æt. 38; one child æt. 14. Gave history of two abortions in 1885 and 1886, the last being followed by some inflammatory conditions in left hypogastrium.

Patient, intelligent and a close observer, gave following history: In 1887, while living in Chicago, was seized with excruciating pains in lower abdomen. Previous menstruation normal, except as to quantity. No suspicion of pregnancy; health excellent. Marked shock accompanied pains; slow reaction; uneasiness in lower abdomen continued; no sharp pains, but griping and fulness, with noticeable "lump," which seemed

to press downward and to left on pelvic viscera; defecation and micturition painful. Condition diagnosed as uterine colic. "Lump" gradually disappeared, and after three months' confinement to bed she was permitted to engage in light household duties. After a period of eight years there was a recurrence of this condition with similar symptoms. This time a suspicion of its cause was entertained and patient removed to hospital for operation. Aspiration disclosed hematocele in broad ligament. Case was kept under observation without further surgical interference. Convalescence this time limited to two and one-half months. On January 22, 1898, I was called to see this woman, with symptoms as before described, except that the previous menstruation had been missed then two weeks. The pain in this case was excruciating and the shock most marked. There had been no premonitory signs, the error of menstruation being accounted for from effects of fright occasioned by midnight fire. The gravity of case was explained and preparations made for operation. Reaction came on promptly, and, in view of her former experience, the patient refused operation until she herself deemed it a necessity. Not wishing to shoulder the responsibility of delay alone, I called to my assistance Dr. W. B. Dorsett. Diagnosis concurred in; advised immediate operation. Patient begged for time. Further counsel secured; concurrence of diagnosis, but, as three weeks had elapsed with no further rupture, it was rightly judged that the rupture had been tubo-ligamentary with destruction of the pregnancy and arrest of hemorrhage. Absorption of hematoma was rapid and uneventful, and patient was discharged two and one-half months after attack. In this connection I would state I have a letter from this patient, dated October 5, 1898, in which she states: "I have missed my last menstrual period and am threatened with like condition for which you attended me." I am not able to state whether her fears have proved true or not; if so, it forms one of the most interesting and rare cases on record.

Taylor, Olshausen, Herman, Coe, and Schauta each record two cases in the same patient, but the possibility of a patient surviving *three* or possibly four gestations of an extrauterine nature, without operative interference in any, is almost beyond belief.

CASE C.—American, age 34; one child, age 13. One abortion four years previous. Had passed her normal period one week. On November 21, 1897, was attacked with pain in



lower left hypogastric, of such severity, as she expressed it, "I thought I must die." Shock was most pronounced; reaction was slow; pain was controlled by hypodermatics; the usual inconvenience from pressure on bowels and bladder followed; later some shred and bloody discharge from uterus was noticed; diagnosis of ordinary abortion made, and later curetted. In this case there were some seven separate curettements.

There was never a complete absence of pain, and after first curettement no subsidence of the fever. I was asked to see the case February 15, 1898. Patient was already prepared for operation. Found hematoma, and from history and present condition made diagnosis of extrauterine pregnancy, with sup-puration in hematoma, probably the result of infection from first intrauterine instrumentation. Small pus cavities and decid-ual membrane were found in the interior of this well-organ-ized, cement-like hematoma. Interior scraped and drainage provided. Improvement immediate and recovery unevent-ful.

CASE D.—American, age 34; one child, 4 years old. Pre-sented following history: While out walking was taken with sudden violent pain in hypogastrium. She was unable for some time to proceed, but after a short rest was assisted to neighboring house, where she remained for some hours, greatly prostrated. She was then taken home, and after a few days' rest was able to be up. Her attending physician gave opinion of her disease as being colic. It was noticed, however, that the degree of weakness was out of proportion to the disease for which she was treated, and one week later her family physi-cian was called, another attack of like nature having in the meantime developed. He was not impressed with the serious-ness of her condition, giving opinion of its nature being due to intestinal indigestion, and suggesting dieting and exercise. She was instructed to call at office, for further advice, one or two times a week. It was after one of these visits, the fourth attack covering a period of five weeks, that I saw her. She was suffering from effects of profound anemia; pulse weak, muscles soft and flabby, but no shock. On examination I could discover no well-defined hematoma. Pain marked in ovarian region on pressure, and a boggy mass, breaking up under finger, was detected by rectal examination. I gave opinion of extrauterine gestation with intraperitoneal rupture, and strongly advised immediate operation as the only possible hope. I did



not believe that this woman would survive another shock, the result of further hemorrhage, without operation, and I felt that to operate in the face of shock, in her present condition of lowered vitality, was nearly hopeless. Twenty-four hours were lost in arranging consultation with her attending physician, and twenty-four hours more were wasted on account of his emphatic dissension from my diagnosis. I could not conscientiously remain in case and share its responsibilities on a faulty diagnosis. We each of us stated our case to family with the utmost candor. I was requested to remain in charge, with privilege to secure such counsel as I might select. I requested Dr. Dorsett to see case with me. During the required careful examination hemorrhage again began; pain followed by syncope. The patient became pulseless. The diagnosis was made plain and emphasized. She was immediately removed to hospital. On opening abdomen a ragged rent was seen in left ovary, from which there was free hemorrhage. The abdomen was filled with fresh and old blood clots. There was no evidence of past or present peritonitis. The patient never reacted, dying the following day.

*Diagnosis.*—If we take the abdominal lines suggested by Anderson and weed out the possibilities until we reach the probabilities, we will find that in these cases our main difficulty is to differentiate between uterine gestation with threatened abortion and extrauterine pregnancy. With those lines, we find that that space known as the hypogastrium contains normally, first, uterus and appendages; second, bladder; third, small intestine and portion of rectum. Except the uterus and appendages, none are liable to involvement which would elicit suggestive symptoms such as have been described.

Pelvic cellulitis might occasion some doubt, but would be eliminated by its history. In all diseases typical or so called "school cases" are rare, and yet all diseases have certain symptoms which unmistakably point the way. If the oöperm was always arrested at a given point and the rupture took place in a certain direction at a regular time, we would have in these cases less latitude for doubt; if in these cases there was no decided sympathetic uterine involvement, there would be still less doubt and fewer unnecessary curettements. With the symptomatology of these conditions placed side by side, we find many points in common, but a marked difference in degrees.

## EXTRAUTERINE.

*Pain.*—Sudden and excruciating, or griping, colicky; usually located to side of uterus.

*External Hemorrhage.*—Usually slight, frequently simulating arrested menstruation; discharge dark, frequently of tarry consistence.

Frequent vesical and rectal symptoms.

Shock and attack of syncope with marked anemia, in many cases in excess of any visible cause.

Patient "feels different."

*Invasion.*—Usually sudden and unexpected, without a perceptible cause or suggestion of condition.

## INTRAUTERINE.

*Pain.*—Less severe, never excruciating, more centrally located.

*External Hemorrhage.*—More profuse; less interrupted.

Seldom vesical or rectal symptoms.

No shock except in rare cases. When present, due to excessive visible hemorrhage. Anemia, when prolonged, assumes a septic nature.

*Invasion.*—Usually due to some well-defined cause, and results expected.

Naturally these symptoms merge each into the other in certain cases. It is a good rule, when doubt exists, to delay a full investigation until patient can be examined under anesthetic, with full preparation for celiotomy if found necessary. A case in point occurred in my practice only last month, which, from the symptoms and history, even to a well-defined lump in left iliac region, presented every evidence of its extrauterine nature. So convinced was I of its nature that I delegated to a colleague the uterine investigation, so as to avoid contamination pending inquiry. The case cleared up on curettement and the lump disappeared as if by magic.

*Treatment.*—No dependence can be placed upon any mode of treatment except a complete removal of the cause of offence. Even in the broad-ligament rupture, where there is arrest of hemorrhage and probable destruction of pregnancy, the dangers of the operation are slight in comparison with the inconvenience and dangers of conservatism.

According to Schauta, 68.8 per cent of all cases die which are not interfered with; those in the early period causing death from hemorrhage, and those of later period from septic peritonitis or rupture of sac in bowels. The possible fate of the child, according to Werth, should not receive consideration, except after the seventh month when viable.

In the majority of cases I question whether the danger incurred by the mother during every moment of gestation, with the small chance of preserving the child's life under the most

favorable conditions, is sufficient excuse for delay. It may then be stated, as a rule, that the proper time to operate is the earliest practicable moment after a diagnosis is made.

The question as to whether it is advisable to operate during shock may be answered in the affirmative. The operation is for the purpose of controlling cause of shock—hemorrhage. Naturally, the sooner the cause is removed the greater the chances of recovery.

The choice of routes, vaginal or abdominal, for reaching the offending structure, must be governed by the particular case.

Kelly lays down the rule, in substance, that, except where hematoma sac is well organized and condition passive, the vaginal operation is permissible; even in these cases he advises full preliminary preparations for celiotomy, should hemorrhage be active and uncontrolled by packing. The abdominal operation is in the great majority of cases the only practical and safe procedure, and its technique differs in no material respect from similar operations on the uterine adnexa, being simple or complicated according to the age of gestation or nature and extent of adhesions.

11½ N. MAIN STREET.

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## SERUM TREATMENT OF STREPTOCOCCIC INFECTION.

A REPORT OF FIVE CASES.<sup>1</sup>

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BY

E. W. SAUNDERS, M.D.,

Professor of Pediatrics and Clinical Midwifery, Missouri Medical College,  
St. Louis.

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(With eight charts.)

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ON account of the great frequency and virulence of streptococcic infection, an active curative and immunizing serum for this disease is very desirable. Especially important does such a serum become when we consider that we have as yet no drug by which this infection can be favorably influenced, and most frequently the micro-organisms have penetrated too deeply into the tissues to be reached by antiseptics before treatment is instituted. Experiments on rabbits show that its potency is indefinite, either because the susceptibility of this animal varies or because the virulence of the bacteria used differs markedly.

<sup>1</sup> Read before the St. Louis Obstetrical and Gynecological Society, September 15, 1898.

The exact properties of this serum are only partially determined. It has no antitoxic potency, and its favorable effects have been ascribed to certain antibodies or alexins—that is, certain definite germicidal compounds. But Bordet has clearly shown that this serum has no more bactericidal properties than normal serum, and that streptococci lose none of their virulence when cultivated in this antidotal serum. He maintains that its principal value lies in its power to stimulate phagocytosis. Italian bacteriologists, however, hold that besides its stimulation of phagocytes it also renders the plasma capable of paralyzing more or less the micrococci. As the medicinal serum *per se* does not affect these microbes, we must conclude that its whole action is a stimulation of the leucocytes. Van de Veld has proved that alexins are secreted by the white blood corpuscles, and this bactericidal substance must be formed in increased quantities under the stimulation of the serum. Therefore, as we know, the antistreptococcic serum stimulates the leucocytes, and as a result we have more active phagocytosis and increased alexin formation. We have no definite knowledge of any other action. The specificity of this power is still undecided. We know that leucocytes become more potent toward streptococci, but whether other bacteria may also be influenced by this stimulation is an undecided question. Clinical evidence seems to be against the assumption that antistreptococcic serum acts favorably in other infections. For the present reliance can safely be placed only on its specific activity against the streptococcus. This specific action manifests itself against the streptococcus pyogenes (Rossbach) and the streptococcus erysipelatis (Fehl-eisen), the identity of which is firmly established. Bullach, moreover, has demonstrated that an animal immunized to the streptococcus erysipelatis is also immune to the pus-producing streptococcus. From biological investigation the conclusion is justifiable that this serum would be valuable in all the clinical forms of septicemia produced by the streptococcus.

A few clinicians have reported cases in which an injection of the serum has aggravated the symptoms, and even death has been directly attributed to it; but in these cases the possibility of a decomposed serum seems not to have been carefully excluded. It has been pointed out that a very large dose of the serum may destroy at once too many bacteria, and the effect of an enormous number of dead streptococci in the blood might be more serious than living germs; yet it is to be remembered that, as far as we know, this serum does not directly

destroy the germs, and we cannot entertain this possible danger. However, since a stimulation of the leucocytes is the action of a good antistreptococcic serum, it is possible that an excessive dose might overstimulate and eventually paralyze the activity of the white blood cells. It is hardly possible that any reasonable dose, say from 10 to 30 cubic centimetres, has this dangerous overaction.

The editor of the "American Year Book of Medicine and Surgery" for 1898 sums up all the work of the two preceding years in the field of orrthotherapy applied to puerperal septicemia with the discouraging remark that the use of antistreptococcic serum is a procedure of doubtful value. It is true that with an imperfect serum, even in selected cases, the results may be doubtful; nevertheless it is to be hoped that with sera of high potencies clinical results will become more uniform.

The study of statistics certainly does not lead one to expect brilliant results; but the poor results in the past may be accounted for in a great measure, first, by the use of a worthless or inferior serum; second, by the existence of mixed infections; and third, by delay in inaugurating the treatment. A great majority of cases reported were those in which all other measures had proved useless, and in which the disease had existed for many days and a variety of secondary affections had occurred; as a natural consequence grave disorganization of the blood and tissue cells had taken place. Then, again, too little care has been bestowed in the test cases in regard to a bacteriological diagnosis, and fevers due to the staphylococcus, bacillus coli communis, etc., have been treated as a streptomycosis. It is necessary in all cases to establish the identity of the micro-organism present, and if a good serum has little effect it may be safely assumed that other bacteria besides the streptococcus are present. The literature already contains a sufficient number of cases to inspire us with great expectations in regard to the value of a good serum.

The good effect may be noted in less than twelve hours. The temperature drops from  $104^{\circ}$  to  $100^{\circ}$ , the great mental depression disappears, the appetite returns, the mouth becomes moistened with an increased flow of saliva, the secretion of urine is increased, and suppuration is checked. So decided are these results in some cases that it is impossible to escape the conviction that the serum has a marked beneficial effect. Hirst tries to find a great many difficulties attending its use, which make the treatment of doubtful value; but all these may be



overcome by making a microscopic examination of the lochia at once and using the serum promptly if the streptococci are present in large numbers. It is possible, as Dorland suggests, that the administration of nuclein in addition to the serum, by the production of hyperleucocytosis, may hasten a cure. Hirst reports such an instance where the patient improved at once after the injection of nuclein. Pilocarpine might be used

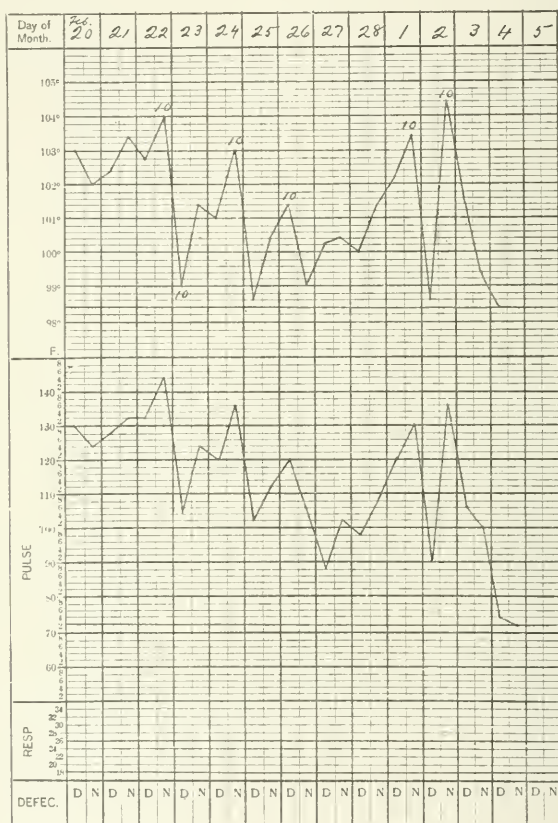


CHART I.—Case I. 10 = cubic centimetres of serum injected.

for a similar purpose. Let me urge that it is absolutely necessary to have a fresh serum not over two or three weeks old, as these sera rapidly deteriorate.

CASE I.—Mrs. S., primipara, was delivered by midwife. In the same house the father of the patient had erysipelas. On the third day patient had chill followed by fever. Dr. Bribach was summoned and instituted the usual local and general



measures. I saw her on the fourth day. Her condition then was very grave. Temperature was high, pulse rapid, and there was great depression. The blood was examined by Dr. C. Fisch and a hyperleucocytosis was found. The lochia showed a pure culture of streptococcus pyogenes, which used on guinea-pigs promptly killed them.

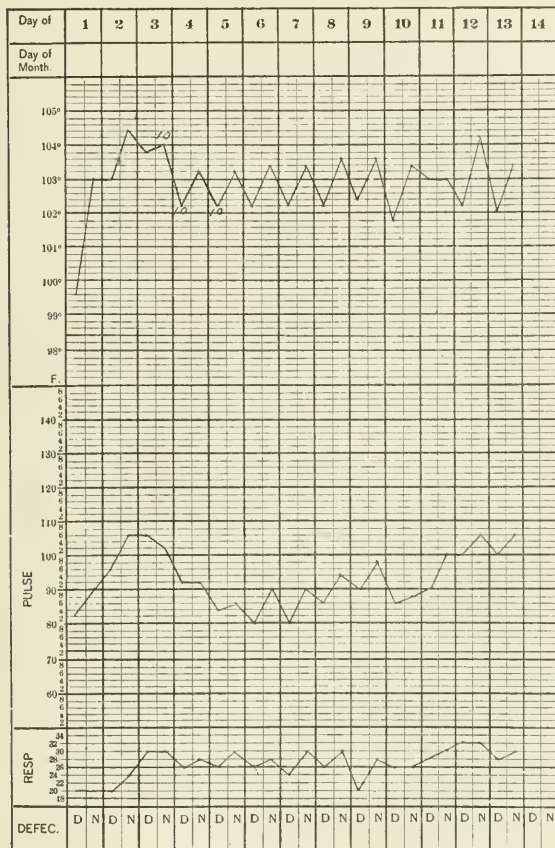


CHART II.—Case II.

The serum treatment was then resorted to. The patient recovered rapidly. The effect is best shown by temperature and pulse curves (Chart I.).

CASE II.—Primipara in the fifth month of pregnancy was attacked by influenza with considerable fever, and aborted. Fetus was born before Dr. McLean arrived, and finger was not introduced into the vagina. Temperature reached 104.4°.

Lochia taken from cervical canal showed streptococci in large numbers. Three injections of serum were given within three days. The fever fell and for the next six days showed the characteristic typhoid curve. On the sixth day after the drop an abundant roseola was discovered. The streptococci had disappeared from the lochia. Intrauterine douches were used.

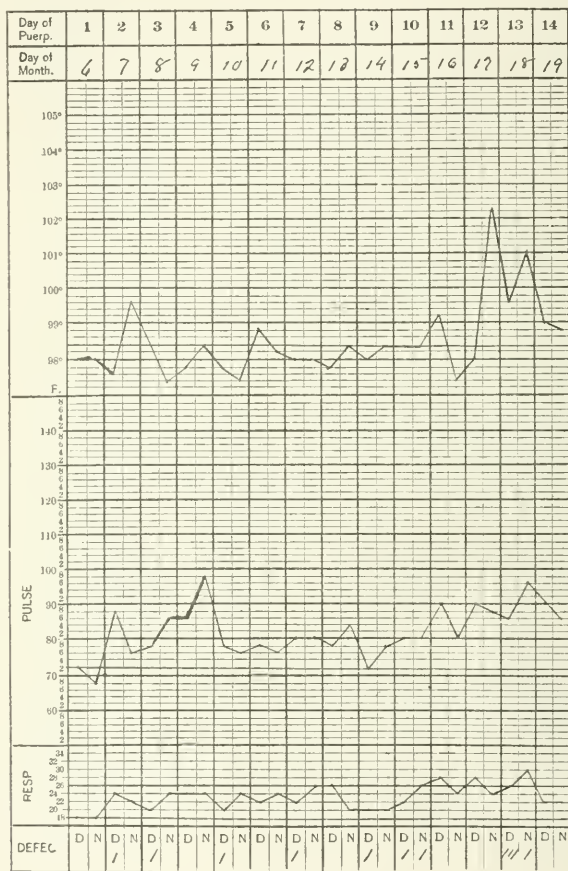


CHART III.—Case III.

The case ran the usual course of typhoid fever until far into convalescence, when a hydrothorax developed. Aspiration was done by Dr. Tupper. The fluid was examined and found to be sterile. Recovery. (Chart II.)

CASE III.—Patient was infected nearly three weeks after labor by a nurse who had dressed a chronic suppurating wound before giving the douche. Temperature rose to 105.2° and pulse

to 160. I saw the case in consultation with Dr. Moore and advised the injection of antistreptococcic serum (Fisch).

Numerous streptococci were found in the lochia. They were tested on guinea-pigs and found virulent. A marked leucocytosis was present. On the twenty-first day after confinement, when the patient seemed moribund, serum was resorted to.

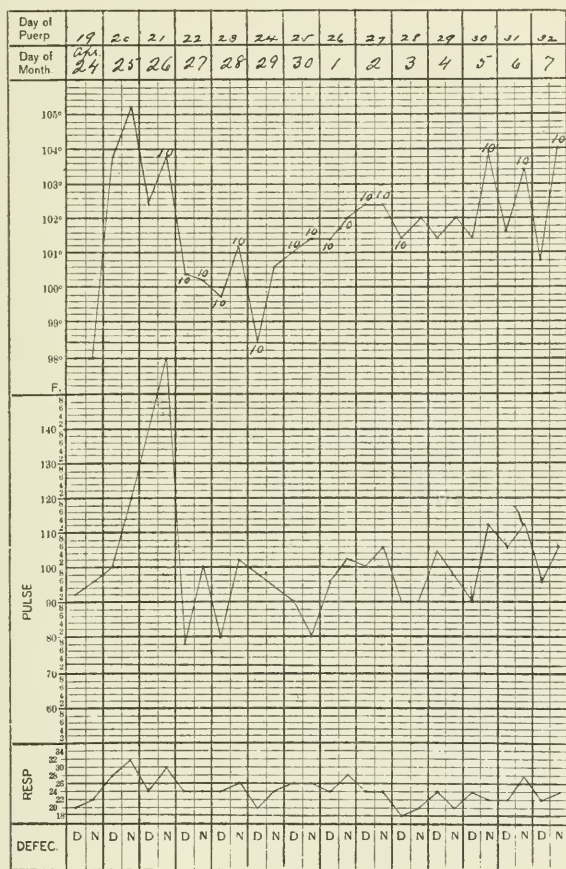


CHART IV.—Case III.

Two injections were given daily (Chart IV.). The temperature rapidly fell and patient's condition improved surprisingly for four days and the streptococci disappeared from the lochia. But fever rose again, and, in spite of double daily injections of serum, remained high until the forty-second day after confinement (Chart V.). Extensive exudation in the pelvis developed and slowly disappeared during this period. No abscess was



Lochia showed a pure culture of virulent streptococci. Blood showed a profuse leucocytosis. Double daily injections of ten cubic centimetres of antistreptococcic serum (Fisch) were given. Convalescence was completely established on the eleventh day (Chart VII.).

CASE V.—H. K., boy, age 9 years, accidentally cut his

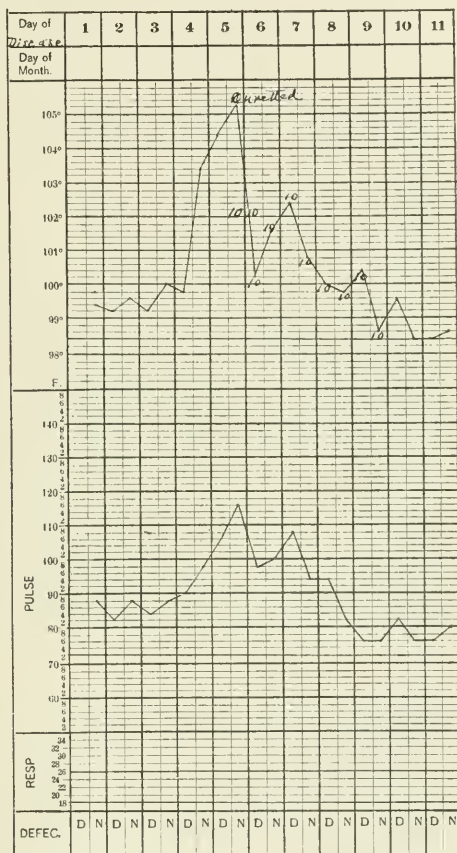


CHART VII.—Case IV.

hand with a pocket-knife. Two days later the boy picked the wound with a needle and removed the crust that had formed. On the following day the hand became swollen and very tender, and he first came under my observation.

Found a small incised wound one centimetre in length on fold between thumb and index finger. The floor of this wound was covered with pus. On the thumb also a small cut was to



be seen. The hand was decidedly swollen and tender. The wound was cleansed thoroughly and some aristol dusted into it, then bandaged.

Patient was seen next day. The local symptoms had become aggravated. Lymphatics along the palmar surface of forearm were red and tender. Some fever had also developed. The original wound showed some improvement, but was curetted and a corrosive sublimate poultice (1:1000) was constantly kept to hand and forearm. On the fourth day the constitutional symptoms were very marked. Temperature  $105^{\circ}$ , pulse 140; anorexia, dry mouth, and great depression. The local symptoms were very much aggravated. Almost whole arm swollen, but particularly about the elbow: the integument was red, swollen, and slightly edematous. No incisions were made.

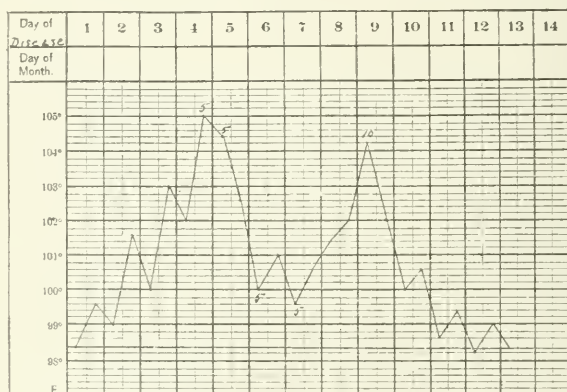


CHART VIII.—Case V.

Four injections of five cubic centimetres each were given on as many days, and temperature fell to  $99.6^{\circ}$ . Inflammation had subsided except at the shoulder. For two days no injection was given, and temperature again rose to more than  $104^{\circ}$ , pulse 130. An injection of ten cubic centimetres was then resorted to, and temperature rapidly fell to normal and remained there. The corrosive sublimate poultices had been continued throughout the course of the disease (Chart VIII.).

The following facts in connection with this case deserve special mention: The temperature fell very rapidly after the injections commenced; the local symptoms improved rapidly and suppuration was entirely prevented; the duration of the disease was very short; the convalescence was very rapid; the distal parts of the inflammation healed first; the last local



inflammation to disappear was that in the axillary lymphatic nodes.

A study of these cases shows a definite effect of the anti-streptococcic serum in every case. In cases number 1, 4, and 5, typical and uncomplicated streptococcic infection, the cure was rapid and, compared with the usual results in such cases, certainly remarkable. Case 2 had a large number of complications, but nevertheless the streptococcic invasion was utterly stamped out, as shown both by temperature and by lochial examination. In Case 3 the streptococcic infection was eradicated probably after the sixth injection, but the staphylococcus finally caused the death of the patient.

I have used the serum in one case of septic infection beginning on the thirteenth day of scarlet fever. The temperature rose abruptly to  $106^{\circ}$ , having become normal and convalescence satisfactory. Aphasia supervened at the same time and persisted until death. Retraction of the head was very marked twenty-four hours previous to death. The diagnosis was not established with any certainty, but was probably abscess of the brain. The serum was given in large doses, in the vain hope that the provisional diagnosis might be incorrect.

1635 S. GRAND STREET.

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## CORRESPONDENCE.

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### MODIFIED UTERINE SOUND.

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TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

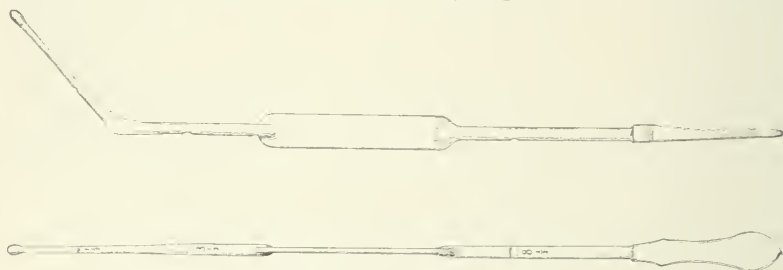
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DEAR SIR.—I am sending you down a sound I have had in use, both in hospital and private practice, for several years. I would like to have it brought before the attention of the profession, and if you will insert in your JOURNAL this letter, together with a drawing of the instrument, I shall feel obliged.

For many years teachers taught that the sound was an instrument to be avoided; that its use was liable to be followed by all sorts of dangerous results. There can be no doubt that this is nonsense and that a clean sound passing into a clean uterus by gentle fingers can do no harm. I use the sound constantly and without meeting with any of the disturbances ascribed to its use by many authors.

I never use it in a case in which the uterus is bound down by adhesions or in which I am satisfied that pus tubes are present. The chief danger in its use appears to me to be in the disturbance of the adhesions of the fimbriated ends of the tubes when they contain pus. This disturbance may also occur as a consequence of digital examination when no sound is used.

For the purpose of diagnosis the sound has, to my mind, always had one drawback, namely, its liability to slip out from the uterus during an examination, unless held by an assistant. I am afraid to allow an assistant to hold a sound, for fear that it may be pushed through the uterine fundus. To do away with this third hand the handle has been made flat and wide, in order that it may be grasped between the third



Ross' uterine sound.

and little fingers and the ball of the thumb while the index and second fingers are introduced into the vagina. With the left hand over the pubes and the right hand occupied as above stated, pelvic tumors can be very exactly outlined and their attachments can be very accurately made out. The uterus is kept straight with the sound, one finger in the vagina pushes up on the cervix to elevate the whole uterus within easy reach of the external hand, and the index finger can then be used to greater advantage.

Many of my medical friends here who have used this particular sound for purposes of diagnosis consider that it is of use.

Yours truly,

JAMES F. W. ROSS.

481 SHERBOURNE STREET,  
TORONTO, November 30, 1898.

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#### NORMAL OR DECINORMAL?

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TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

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SIR:—In the October number of your JOURNAL there is a protest from Dr. Roberts against the employment of the term

“decinormal salt solution” as suggested by Dr. Gaynor to express in scientific terminology a solution of salt intended for transfusion as a remedy for certain conditions to which the latter is theoretically and practically applicable.

In my view, Dr. Roberts is only *apparently* correct in his statements, while Dr. Gaynor is absolutely so.

It would appear that Dr. Gaynor can adopt the standard chemical definition founded on a unit of value accepted by all chemists and pharmacutists, while Dr. Roberts arrives at his definition from the physiological side, which does not carry with it the fixed and definite idea of that advanced by Dr. Gaynor.

According to the United States Dispensatory, “Volumetric solutions are designated as normal when they contain in one litre the molecular weight of the active reagent expressed in grammes, and reduced to the valency corresponding to one atom of replaceable hydrogen or its equivalent.”

Now, based upon this formula, a normal chloride of sodium solution would represent 58.84 grammes of chloride of sodium to a litre of water; consequently a decinormal salt solution would represent one-tenth of this amount, equivalent to 5.84 grammes of chloride of sodium to a litre of water, this solution almost exactly corresponding to the normal proportion of salt contained in the blood—that is, in round numbers, six parts to one thousand parts.

In an emergency or for other reasons, a physician may even order from his druggist for transfusion a “decinormal salt solution”; if ordering a “normal salt solution,” it is obvious he will obtain one ten times the required strength.

It would seem that a term should be employed which is universally understood, and moreover one which, being hardly less physiological in its meaning, is certainly more scientific and accurate; for even if physiologically considered, there is some difference in meaning between a “normal salt solution” and a solution *in water* of that amount of salt which is normally contained in the human blood. Therefore, with the utmost propriety, we may continue to use the term “decinormal salt solution.”

HENRY K. LEAKE, M.D.

DALLAS, TEXAS.

TRANSACTIONS OF THE SECTION ON  
GYNECOLOGY OF THE COLLEGE OF  
PHYSICIANS OF PHILADELPHIA.

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*Stated Meeting, November 17, 1898.*

EDWARD P. DAVIS, M.D., *in the Chair.*

DR. JOHN B. DEEVER read a paper on

SUTURE OF THE WOUND AFTER ABDOMINAL SECTION.<sup>1</sup>

DR. GEORGE ERETY SHOEMAKER.—The subject is one of a good deal of importance. I would agree with the speaker in many of his points, particularly in regard to the desirability of opening through muscle and not attempting to separate the linea alba. Much can be learned which is pertinent to this subject by a study of the problems of radical cure of inguinal hernia. As a result of the evolution of these operations, it is a matter of general agreement that it is necessary to prevent the formation of a pit or depression internally at the site of the wound, also that the method of suturing in tiers is the best. It seems to me that the through-and-through suture is open always to the objections of producing this depression on the peritoneal aspect of the wound, also of failing, except under ideal conditions, to properly approximate corresponding tissues, and also of being apt to produce a solid scar, which solidity does away with the slight protection of a movable cushion of properitoneal fat. For that reason, wherever there are no complications, it is my custom to suture in layers, first the peritoneum with very fine silk, expecting the properitoneal fat, if well developed, to fall together, then suturing the muscles with running chromicized catgut. Of course the longitudinal muscle bundles would easily split apart again, but it is very desirable to fill in completely the wound and to prevent the formation of a pit from intra-abdominal pressure. Lastly, I close strongly the sheath of the rectus with chromicized gut and the skin with subcuticular silk. This method of operation is unsuitable for drainage cases and for infected cases, where there can be no question that the through-and-through suture is better. The suture material is more or less a matter of choice for the operator. Personally I like to feel that all the material will ultimately be removed from the wound. I have therefore abandoned the use of the buried silkworm gut, not because I did not in a long series of cases get aseptic immediate results, but because, in a year or more, in perhaps one or two per cent of cases there would be a stitch or two to be

<sup>1</sup> See original article, p. 25.

removed. I think the same is true of silver wire, as, by closely questioning the principal operators who have used it for any length of time, I have found that in a very small percentage of cases a subsequent operation is necessary to remove one or two or more stitches a year or two later. Personally I prefer to use a chromicized suture, which will carry on the approximation during three or four weeks and will then disappear. We know that after the first three or four weeks no suture material can aid in the strength of a wound, because if there is any permanent tension on the suture the tissues cut until that tension is relieved. The hernias that I have personally been called upon to close have been invariably in cases where the through-and-through method of suture had been used by various good operators. One reason, but not the only reason, for this is that surgeons in this part of the country have used that method very much more frequently than the other.

DR. JOHN C. DA COSTA.—I can heartily indorse Dr. Deaver's idea of entering the abdomen through the muscle and not through the linea alba. Up to fifteen years ago very explicit directions used to be given for making the incision in linea alba, and you were told if you got into the muscle you were to take a grooved director and hunt for the furrow and cut through it. Our results then were not as good as they are to-day. It is my practice to make the incision near the central line without regard to the linea alba, preferring to go through muscle. In that way you have a cleaner cut, and therefore may hope for good union.

In regard to closing the wound, I have tried, as most of us have, various sutures, and have settled down to the tier suture. The character of the suture we use makes very little difference. The union and non-union is largely a matter of who does the suturing. A man as experienced as Dr. Deaver will have success with almost any suture. He has learned to suture in such a way that muscle comes to muscle, fascia to fascia, and skin to skin; but the ordinary beginner who uses the through-and-through suture will have peritoneum against muscle, and muscle against fascia, and his wound will be up one side and down on the other, and, as a natural result, he will not have good union. In making tier sutures I cannot agree with Dr. Shoemaker about the properitoneal fat, because in a great many cases we operate on we do not find properitoneal fat. We find the peritoneum in close apposition to the fascia, and we will find it often adherent to the abdominal wall, so it is with difficulty we can separate the two. I like a tier suture. I run up the peritoneum with a running suture, then take the fascia and the muscle in the next row, and it is a very important point to get the two sides of the fascia so that they are even together or overlap. If you get them together you will have a tight abdomen; if you do not get them together you will have hernia. The next row I take through the skin, cellular tissue, and down through the fascia, reinforcing the row of sutures already in the fascia. As to the material, I do not like to leave anything under the skin that will remain



there. I use for the peritoneum a fine gut, for the fascia a heavier one, and for the third row silkworm gut or silver wire. I used to use Chinese silk, but at present use silver wire, having gone back to my custom of fifteen years ago. I cover the whole surface, after the wound is perfectly dry, with silver foil. The absence of hernia depends upon who does the work. The expert man can make union with almost any suture. In regard to umbilical hernia, I have seen and operated on some very bad hernias, and I think the reason that hernias return after operation is that often the operator does not go far enough. He will make his cut, and he will find the muscle covered with a dense fascia, and will sometimes snip a little bit off, sometimes not, and attempt to unite the two sides. In these operations for umbilical hernia you must go far enough up and far enough down, making a fresh cut through the abdomen in two places (above and below), and then split thoroughly the fascia covering the muscle. You will find then that the muscle will be free and that you can close it with two rows of catgut suture. I do not use silver wire here. You should sew together the lower layers on each side, then the upper layers on each side, uniting the fascia at the same time that you unite the upper part of the muscles, then close with a suture that will go through skin and fascia. I think our absence of hernias in late days in general abdominal operations is rather due to the expertness of the men who are doing it than to any particular form of suture.

DR. H. D. BEYEA.—In reference to silver wire as a suture for the fascia of the rectus muscle in closing the abdominal wound, I have employed this method in about 80 cases during the last year and a half, and, with Dr. Deaver, I have never seen it cause trouble worth speaking of. Among these cases there was one patient who complained of pain over the site of insertion of one wire suture for a few days after she returned home. Another patient had a small amount of suppuration in the wound, and after several weeks a wire suture was discharged. The only other instance where I have known of this method causing symptoms was in a case operated upon by Prof. Penrose. It was the first time he had used silver wire in the fascia, and he did not turn down the ends of the twisted wire. The patient being a thin woman, and there was thus little superficial fascia to bury the ends of the wire, these ends after a few weeks almost protruded through the skin. She came back to the hospital and I removed the sutures.

Two methods of closing the abdominal wound are employed at the University Hospital. Where the wound is small, as in the operation for ventrosuspension of the uterus, the peritoneum is closed with fine silk, the fascia of the rectus muscle with interrupted silver-wire sutures, and the skin is closed with a fine silk intracutaneous suture. In introducing the silver wire we take pains to catch a considerable amount of the fascia and secure accurate apposition, and also we are very careful to turn down the twisted ends of the wire. For a time we used catgut

to bring the superficial fascia together, but found that it now and then caused necrosis of tissue and some suppuration followed. In other cases, where the wound is large (after hysterectomy for a large fibroid tumor), the mass silkworm-gut sutures are employed, the fascia being closed with silver wire as mentioned. I have seen during the last five years, after all the cases operated upon by Prof. Penrose and myself, only two or three hernias.

DR. R. C. NORRIS.—I have not had the pleasure of hearing Dr. Deaver's paper, but I would like to bear testimony to a method I have been employing for nearly three years, that has been so satisfactory that I have never felt like making a change. In my experience, when drainage is not used, I have found wholly efficient through-and-through sutures of silkworm gut and a running chromicized catgut suture to close the fascia. I have followed my cases very closely, to ascertain what proportion of them developed hernias. As we all know, our hernia cases frequently go to other surgeons; but I think I have had the good fortune to follow my cases very closely, and I can say that I have not seen a hernia follow this method of closing the wound. The essential principle of the prevention of hernia hangs upon accurate apposition of the fascia, and that can be brought about by a continuous catgut suture. The strain on the wound is borne by the through-and-through sutures, which emerge and enter close to the margin of the peritoneum. We have the additional advantage of uniting the tissues plane to plane. There is also not the same danger of a hematoma, which we know sometimes follows when we use a continuous catgut suture in tiers. The advantage claimed for stitching together separately the cut edges of the peritoneum I could never quite appreciate. I have never seen a hernia that was not covered with peritoneum. The only theoretical advantage of a continuous suture of the peritoneum is that it may prevent adhesions to the peritoneal surface. Accurate apposition of the fascia of the rectus muscle, through-and-through stitches not tied too tightly, in order not to bind the wound or strangulate it, are the features of the method I have used very many times and always with satisfaction.

I formerly used the tier suture, but an occasional hematoma and breaking down of the wound convinced me that I, at least, could not use that method as satisfactorily as I could the interrupted sutures with fine chromicized catgut to approximate accurately the cut sheath of the rectus muscle. When the fat in the abdominal wall is abundant, a subcuticular suture, placed before tying the silkworm-gut sutures, will prevent the eversion of the skin margins of the wound that otherwise is very apt to occur.

DR. JOHN B. SHOBER.—My method has given me great satisfaction and is practically the method Dr. Deaver advanced in his paper. I heartily approve of through-and-through suture in most abdominal wounds. I do not use it in small abdominal wounds, as after hysterorrhaphy, because it seems

scarcely necessary to support these wounds; the tier suture is sufficient. I use fine silk for approximating peritoneum for the reason Dr. Norris has spoken of—namely, that it may tend to lessen the tendency to adhesion—and I follow it up by suturing the fascia with strong catgut and then apply the intercuticular stitch. In larger wounds I invariably make a practice of supporting the line of union by a number of through-and-through silkworm-gut sutures about one-half to one-quarter of an inch apart. For the fascia I use interrupted silver-wire sutures or carefully prepared catgut, being very careful to dispose of the ends of the wire so that they will not irritate the superficial fascia. Throughout the wound should be kept dry by gentle mopping. If there is much superficial fascia it is closed by a tier of buried catgut, then the intracuticular stitch, after which the through-and-through silkworm gut is tied. The important thing, as we all know, is to keep each layer approximated to corresponding layer, and it is very important to keep the wound absolutely dry during the procedure.

I do not think it makes any difference whether the incision is made through muscle or linea alba. In going through the linea, the edges of the sheaths of the recti muscles are always split at any rate, thus exposing the fibres and bringing muscle to muscle when the wound is closed.

DR. JOHN C. DA COSTA.—In regard to keeping wound dry, I have had very good success in a method I have adopted for three or four years past. As each layer is closed I sponge the whole raw surface off with alcohol. I am not at all afraid to use alcohol upon the peritoneum, and in using it in this way you will have a clean wound, a dry wound, and an aseptic wound. People are afraid to use alcohol, fearing it is too great an irritant to the peritoneum. One of the good ways of stopping hemorrhage deep down in the pelvis when you have oozing, when you find your packing does not control it and you cannot put in a suture, is to take a sponge, dip it in alcohol, squeeze it out, and put it in the pelvis. That will keep the wound clean and will keep it dry and keep it aseptic.

DR. EDWARD P. DAVIS.—I have recently had occasion to suture several extensive abdominal incisions. Some of these occurred after Cesarean operation, when necessarily the incision was a large one. In closing these wounds I have not endeavored to bring edges of peritoneum together at all, but have purposely avoided doing so. I have first introduced silkworm-gut stitches through and through. After they have been placed, the edges of the peritoneum have been drawn up through the entire length of the wound and stitched by chromicized catgut of medium size. The result of this has been to bring the surface of peritoneum just below the cut edge to the corresponding smooth surface of the opposite side, and the result in my experience is a very firm peritoneal union. I prefer this method of bringing the peritoneal edges together.

If aseptic stitches be properly placed in an aseptic wound

there is no occasion to interfere with this wound for from ten days to two weeks. The wound should be as thoroughly immobilized as possible. For this purpose I prefer to dress the abdominal wound with the usual cotton gauze, and then to completely cover this with strips of adhesive plaster passing from side to side and overlapping the edges. The greatest pressure should be made over the solar plexus, and I find that shock can be greatly lessened, after operation, by this pressure. A many-tailed bandage may be used outside if desired. With this method I often leave wounds untouched for two weeks after operation, to find perfect union at the first dressing.

DR. JOHN B. DEEVER.—One point Dr. Beyea referred to seems to call for reply—as to silver-wire sutures. After the wire is cut it is very important to bury the point, otherwise we must have trouble. The other question, as to division of the nerve supplying the belly wall; this is responsible for the traumatic neuritis which causes a great deal of the pain many of these patients suffer, and which we are sometimes inclined to attribute to some defect in repair of the wound. We know these nerves are so situated that a vertical wound of any length must necessarily entail division of one or more of the nerves.

DR. E. P. DAVIS reported

#### TWO CASES OF SACRO-ILIAC DISEASE IN PARTURIENT WOMEN.<sup>1</sup>

DR. H. AUGUSTUS WILSON presented a model of the apparatus employed in the treatment of Dr. Davis' cases. He said:

It is the old-fashioned cuirass modified to permit of absolute immobilization. This consists in part of a hinged trap for the use of a bed-pan, in such a way that the patient can be kept for upward of a year, if necessary, without being disturbed. When it is necessary to sponge the back the patient and apparatus can be enveloped in a sheet held firmly, the patient turned face down on the bed, the apparatus removed, and such sponging of the back as is required performed.

Cases having severe pain during pregnancy, caused by sacro-iliac disease, while uncommon, are, I believe, more common than ordinarily recorded. When the pain is of great severity it is far more apt to be ascribed to sciatica or other more or less remote symptoms of disease of the sacro-iliac synchondrosis rather than to the real cause, and the actual pathological condition is overlooked.

The existence of typical sacro-iliac disease—*i.e.*, tubercular osteitis of this synchondrosis—in these cases may be doubted, inasmuch as some analogous cases occurring during pregnancy sometimes proceed toward complete recovery, which is not the usual course when a joint is involved in a tubercular process. It seems to me to be clear that the cases reported by Dr. Davis were either of the character of severe sprains, or were typical tubercular disease with early recognition and arrest of the pathological process before suppuration occurred.

<sup>1</sup> See original article, p. 51.



All the symptoms are in perfect accord with cases which, not being arrested in the early stages, progressed and subsequently developed abscesses, and therefore there can be, I think, no doubt as to their real pathological condition. The rapid arrest of pain and the speedy recovery of these cases may be accounted for, first, by the early, correct diagnosis and immediate recourse to rational treatment applicable to tubercular bone disease elsewhere.

Bryant<sup>1</sup> is the only available text book that refers to parturition as a cause, and says: "Disease of the sacro-iliac joint is occasionally the result of injury, more frequently following parturition, and at times is the secondary effect of disease of the bones which form the joint."

Erichsen<sup>2</sup> says: "The sacro-iliac disease is essentially a very chronic affection, lasting for months or years." And further: "The prognosis of this disease is always most unfavorable. I am not prepared to say that it is of necessity fatal, but I have never seen a patient recover after the full development of the disease and after suppuration had set in."

Weller Van Hook<sup>3</sup> reports thirty-eight cases with abscess, with only three recoveries.

Heath<sup>4</sup> reports three cases, all terminating in abscess formation. All were operated upon, with two recoveries and one reported still under observation.

The diagnosis is often difficult for the reason that in the incipency, when recognition is of the greatest value, the symptoms are usually not well marked and may readily be confused with neuralgia of the hip, sciatica, caries of the spine or hip. In none of these affections will lateral pressure upon the pelvis elicit pain, as occurs in sacro-iliac disease; and while this alone cannot be relied upon, its value in conjunction with the other symptoms and evidence that the hip and spine are not involved will clear up the diagnosis.

In eliciting the existence of pain by lateral pressure upon the wings of the pelvis, it must always be remembered that this procedure produces traumatism, which is a potent factor in the progress of the disease. The necessity of obtaining a definite diagnosis warrants the resort to this procedure in concluding an examination, but its repetition should be avoided as productive of harm.

Complete immobilization of the parts, with entire freedom from tension or compression, is now well recognized as the means which best favors the arrest and recovery from tubercular invasion. In no way can this be accomplished so successfully as by recourse to a form of bed that will tend to avoid all movement of the legs and pelvis, and at the same time be so arranged as to facilitate the use of the bed-pan without moving the patient. The appliance that I have modified to

<sup>1</sup> "Practice of Surgery," 1875. p. 764.

<sup>2</sup> "Science and Art of Surgery," 1878, vol. xi., p. 300.

<sup>3</sup> Journal of the American Medical Association.

<sup>4</sup> Clinical Lecture, British Medical Journal, December 16, 1876.



meet the exigencies of these cases was made for me by A. Gustaf Gefvert & Sons, from whom further information may be obtained.

The application of constricting bands embracing the pelvis appears to me to be irrational and opposed to the principles applied to all other joints where relaxation, or rather avoidance of direct pressure, should be sought. The tightly-compressing pelvic bands so frequently recommended in text books can only immobilize the joint by actively compressing the already diseased part and thereby committing a surgical sin of the greatest magnitude. It is not impossible to suppose that the use of this method accounts for the exceedingly unfavorable results usually recorded, and there appears to be no rational indication for its employment.

The same remarks apply equally well to the use of counter-irritation by blisters and actual cautery, which is likewise strongly advocated by text books.

The use of extension and counter-extension, while easily applied, does not appear to offer any advantage over rest by recumbency without extension. Experience has shown that enforced recumbent position usually quickly affords entire relief from pain, and thereby assists in inducing the patient to remain tranquil, without movement, for many months. Extension is applicable to other joints for the purpose of overcoming the muscular rigidity by means of which patients endeavor to prevent motion, and does not necessarily produce a separation of joint surfaces, but often assists in securing the relaxation of the parts which is essential for repair. The same complete relaxation is obtained by enforced recumbency in a suitable appliance, as evidenced by the entire absence of rigid muscles and pain usually after the first four or five days.

The use of crutches is deprecated for the reason that the intermittent relief and pressure occasioned by their use in walking is seriously injurious. Even though a high-heeled shoe is worn upon the sound side, direct pressure upon the affected joint must occur with every movement of either leg.

During the necessarily long confinement attention to the hygiene and general constitution is required to prevent pressure sores and maintain the best possible condition of the body. I have found that the use of guaiacol in five-drop doses three times daily was well borne and acted favorably. General tonics, and massage passively applied, with frequent bathing with alcohol, greatly increased the comfort of the patient.

DR. R. C. NORRIS.—It has never been my fortune to see a case of true sacro-iliac disease follow labor. I have seen cases of intense pain and disability referred to the sacro-iliac joint, but I have never been able to convince myself that there was actual structural change in the joint. I believed these cases of severe pain located in this region to be the result of pressure upon the nerve trunk or nerve plexus. I have seen a few women who for six or eight weeks after labor could not walk on account of pain, and have administered medicines with the

idea that they were suffering from neuritis. One patient I have in mind particularly who had an easy induced labor, accompanied by no traumatism, and who had intense and agonizing pains in this region of her body. After rest in bed for three weeks failed, she was relieved by the free use of the salicylates. The cases Dr. Davis has reported are exceedingly interesting, and as he read the notes of them the only question in my mind was as to the diagnosis, but I should not question that, since both he and Dr. Wilson studied the cases critically. In my experience I have looked upon analogous cases as due to neuritis.

DR. WILSON.—I believe that the majority of writers, Bryant, Bradford, Lovatt, state that there is no disease simulating sacro-iliac disease which gives the evidence of pain upon lateral pressure, such as always occurs in sacro-iliac disease. In both of these cases to which Dr. Davis has referred the diagnosis was cleared up by this measure.

DR. JOHN B. DEEVER.—I would not care to take exception to Dr. Davis, but the fact that so few cases of sacro-iliac disease recovering are on record would make me incline to believe that the second case he reports, where the trouble is recurring, was probably not so serious; it was entirely due to parturition. I have yet to see a case of sacro-iliac disease. It occurred to my mind that the recurrence of pains, in one case, on subsequent pregnancy tended to confirm belief in the trouble being due to pressure on nerves incident to parturition. As to Dr. Wilson's statement in regard to actual cautery and blisters, there are certain underlying principles of surgery which it seems to me are pretty difficult to discard. In synovitis of extremities I believe Dr. Wilson will admit that he has seen blisters do a great deal of good and he has seen the actual cautery do good; but I grant that the present generation does not use them as much as the older generation. I would be very much inclined, among other agents, to resort to that means. The appliance the doctor exhibits is very ingenious and has served the purpose beautifully in these cases. "The proof of the pudding is in the eating of it," as the old saying puts it. It would occur to my mind to envelop a case of this kind in plaster-of-Paris. Of course the apparatus immobilizes the entire body, and the plaster would immobilize pelvis but could not immobilize the extremities. It is, I think, an open question as to the second case Dr. Davis narrates being one of sacro-iliac disease.

DR. JELKS (guest).—I was very glad to hear Dr. Wilson refer to Weller Van Hook. I have the honor to have been one of his teachers years ago. He has written more upon the subject than any writer, and is an authority, and the best we have, on sacro-iliac disease. It has been my fortune in Hot Springs, Ark., to see a good many cases. I have seen none connected with labor, and hence I am not prepared to discuss this paper as to its appearance after labor. Personally I have seen no recoveries. They leave in as bad shape as when they come. I

thank Dr. Wilson very much for his remarks and demonstration of this immobilizing apparatus.

DR. D. LONGAKER.—I have never seen a case of sacro-iliac disease follow parturition. I have seen a great number of cases where severe and rather prolonged traction with axis-traction forceps was made and without injury to the sacro-iliac joint in any instance.

DR. EDWARD P. DAVIS.—When these cases were first seen, neuritis of the pelvic nerves seemed the most probable diagnosis. Such cases are not at all rare. In these patients, however, the symptoms of neuritis were absent, and, upon consultation with Dr. Wilson, the effect of lateral pressure and the other characteristic symptoms described made the diagnosis no longer doubtful. I have seen after symphyseotomy two cases in which the left sacro-iliac joint yielded during the extraction of the child. Both of these patients, however, recovered without trouble and developed no complication. In regard to Dr. Deaver's suggestion that in the second case the pressure of the child causes the pain, we must remember that the pain and disability remained after labor and when the woman was convalescent from labor. In these cases, also, neuritis of the pelvic joint could not be found. The treatment suggested by Dr. Wilson has been so satisfactory in the first case that I think we may hope for her complete recovery. In regard to the second patient, who is now pregnant, it seems possible that the increased vascularity of the parts, which pregnancy brings, lights up a chronic inflammation which otherwise would be latent.

DR. EDWARD P. DAVIS presented a specimen of

#### UNRUPTURED CYST OF THE BROAD LIGAMENT.

This tumor was taken from a woman, age 29, who had borne one child. It completely filled the left broad ligament, had pushed the uterus downward and backward and to the right. It was removed without rupture by separating its adhesions to the anterior and posterior layers of the broad ligament, making a pedicle of the left tube, and removing a portion of the tube and ovary, which were firmly adherent to the tumor. The tumor seemed to involve a portion of the ovary. The layers of the broad ligament were then brought together with fine silk and the uterus replaced. The opposite tube and ovary seemed healthy.

On examining the tumor a difference of opinion existed regarding its nature. Some thought it a hydrosalpinx, while others considered it a cyst of the broad ligament in which hemorrhage had taken place. The tumor contained a dark fluid, and its wall resembled a membrane lined with epithelium.

TRANSACTIONS OF THE CINCINNATI  
OBSTETRICAL SOCIETY.

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*Meeting of April 14, 1898.*

*The President, E. S. McKEE, M.D., in the Chair.*

DR. R. W. STEWART presented a paper on

PUERPERAL ECLAMPSIA.<sup>1</sup>

DR. E. G. ZINKE.—This essay is an especial and interesting effort to determine by personal investigation the nature of the causes that produce convulsions during pregnancy, labor, or the puerperal state. I have never experimented in that direction myself, having preferred to confine my work to the study of the labor of others more favorably situated than I am, and have followed their results as closely as one can who is otherwise busily occupied. The conclusion at which I have long since arrived tallies with the opinion entertained by nearly every man of experience, namely, *that, notwithstanding all the careful, painstaking experiments that have been made in the past and present, we are to-day not one step further in our knowledge of this subject than we were ten, fifteen, ay, even fifty years ago. All we recognize is the plausibility that the cause of puerperal eclampsia is a toxicity of the blood, and that an imperfect or insufficient elimination of the effete elements within the circulation is probably to blame for the occurrence of an attack of convulsions. But the manner in which, or why, the emunctories cease to act properly or entirely, and how the poison or poisons act upon the system, we do not know to this day.*

There are a great many inexplicable manifestations about the occurrence of eclamptic seizures. One physician may practise obstetrics for ten or fifteen or even twenty years and not see a single fatal case of puerperal convulsions, and congratulate himself on his skilful and successful treatment of the same; while his less fortunate neighbor is obliged to record a mortality of twenty-five to fifty per cent. It is needless to mention and to dwell upon all the remedies that have been suggested from time to time for the relief of this obstetrical complication. We are all familiar with them: some enjoy quite a reputation, especially morphia, veratrum viride, chloral, and chloroform. When a case recovers, the rule is that the remedy last applied is the one that receives credit for the favorable result. In one instance it may have been chloroform, in another chloral, in another morphia, in another veratrum

<sup>1</sup> See original article, p. 28.



viride, in another hot baths or copious sweating, in another several or all of these. Every now and then, however, some physicians are confronted with cases in which all of these highly praised remedies fail and the patient dies in spite of the most approved treatment—if not because thereof.

Another remarkable observation is that, in some instances, we have all the premonitory symptoms of a possible super-vention of an attack of convulsions. The patient is treated prophylactically; her condition improves; the albumin in the urine diminishes or disappears completely; all evidences of kidney lesion vanish; but, notwithstanding, the patient has an attack shortly before, during, or after labor, and dies in defiance of all the care and remedies promptly and properly administered.

Again, physicians see cases and upon examination find that the general condition is quite serious; the blood is in a bad state; the urine shows evidence of extensive kidney complications; there is well-marked general anasarca; she is financially poor; her surroundings miserable; treatment is refused from ignorance, or it may not be possible to carry it out. She goes into labor, is safely delivered, but has no convulsions, or, if she has, recovers promptly (with or without treatment) after a varying number of attacks.

There is another class—those in which there is not the slightest indication of impaired health. Suddenly, without warning, the victim is thrown into spasms. Sometimes they live, sometimes they die. Do we really know why? No!

And then there are those cases in which one attack follows closely upon the heels of the first; there is a third, a fourth, a tenth, a fiftieth attack, with more to follow, and yet the patient recovers and, what is strangest of all, without treatment, too. I have seen such a case in one of Europe's best maternities. The patient had more than a hundred seizures. Nothing was done except to prevent her from falling out of bed. She recovered. Here is food for thought, for reflection. Who will, who can explain?

More than fifty years ago Oliver Wendell Holmes and Sir James Y. Simpson pointed earnestly and persistently to the kidneys as the probable cause of this disease. Experiments and clinical observations by the ablest and best of men in the profession have been many. They form an unbroken chain from then down to the present, but the secret still remains unsolved and the treatment is, to say the least, of doubtful efficacy. There is no proof that any one of the most cherished means and methods to combat this malady is of real value.

Are we not thus forced to the conclusion that it does not matter so much in which remedy we place our trust? Of course we are expected to do something. In this country, and among the laity abroad, it would be considered most brutal to leave a woman in this condition without an effort at relief. Therefore we try and do the best we can with what we have at our disposal, and that meets with professional approval. But



this is certain, that those who have the greatest experience with these cases entertain considerable doubt as to the actual utility of even the most popular remedy employed for this malady.

One can scarcely do justice to the paper presented this evening, because it contains so much. It is only by careful study of it that one can judge of the real value of the author's observations, experiments, and conclusions.

DR. M. A. TATE.—The paper of Dr. Stewart is certainly very interesting, because none of us have tried to make many experiments. Dr. Zinke takes a despairing view in the treatment of puerperal convulsions. I have had five cases. The first occurred with Dr. Kemper, and he and I delivered very rapidly and saved both mother and child. The second case occurred at the hospital, and I again attempted to deliver after having the counsel of Dr. Zinke and Dr. Rowe; that patient and child both died. The third case was a very interesting one. I was engaged beforehand and put the patient on the best treatment to my knowledge. She was taken with convulsions, but I decided, after due deliberation, that I would not deliver, so I left the patient alone. She was eight months pregnant, and after having eight convulsions went on to term and gave birth to a child without any trouble; she had no convulsions. In the next case the woman was in labor, and I hastened the delivery and saved both mother and child, although in that case the patient was so bad I thought there was no chance whatever of saving her. Dr. Johnson asked me to see the last case. The patient had been in convulsions for six hours. We gave her a hypodermatic injection of morphia and hastened labor. I dilated the cervix, introduced the forceps and delivered hastily, and in about four hours after she died, going from one convulsion into another. The child was also lost. I feel, after this limited experience, that every case is a case unto itself.

DR. C. L. BONIFIELD.—I believe that *veratrum viride* properly given will control almost all cases of eclampsia. The dose Dr. Palmer suggests is certainly a safe one. I would recommend four times as much hypodermatically to begin with, and the effect kept up by its further administration by the mouth, if the patient can swallow. Other measures recommended for controlling the convulsions are not to be neglected. The uterus is to be emptied as rapidly as is consistent with safety, and the bowels are to be thoroughly cleaned out, but it is seldom necessary to administer drugs other than *veratrum*.

DR. KEMPER.—It seems to me that there must be a unanimous disapproval of the "let alone" or "expectant" treatment in any and all diseases. The results of such treatment it is difficult to estimate in such a discussion as this, since, if they prove anything, they prove too much. The administration of opium in any form in cases where the kidney is diseased is a matter for solicitude and watchfulness. To make it effective in puerperal eclampsia it must, like any other remedy in any

like case, be pushed to its full effect. That is particularly dangerous in cases of irritable acute disease of the kidney or chronic disease of the kidney. Unexpectedly sudden and irremediable congestion of the kidneys with fatal suppression of the urine often occurs. I have not been able to get satisfactory results from *veratrum viride* and therefore have discarded its use. Most happy results in my hands come from the use of chloral and chloroform. My experience teaches that any case of the disease that will yield to medication may be controlled and cured by these remedies. In all cases of puerperal eclampsia that have come under my notice there has been chronic disease of the kidneys, acute disease of the kidneys, or chronic alcoholism. In all cases of puerperal eclampsia, whether mild or severe, some recover and some are fatal. Perhaps the average number of recoveries is increasing.

DR. A. W. JOHNSTONE.—It is to me the most interesting subject, next to the mechanics of surgery, and has given me more thought than anything else, and I cannot thank Dr. Stewart enough for the paper he has given us. You remember at one of our meetings this same subject was brought up. I there gave Dr. Rachford's ideas about the xanthin bodies and his belief that xanthin was at the bottom of these troubles. The convulsions Dr. Stewart has described as gotten from the toxic urine were identical with those produced in the rabbits I saw experimented on. The subject is too large to discuss fully, but we are at last, I am happy to say, coming into the dawn as to what these things are. You all know the xanthin compounds are the albuminous substances in different degrees of oxidation. At one end of the line is urea, at the other end of the line is the paraxanthin. The xanthin bodies themselves are all poisonous, but the paraxanthin is the most noxious of them all. If this is the case, puerperal eclampsia is perfectly plain. Women have been known to die without the slightest sign of any kidney trouble whatever, as in this last case. It is in the tissue metamorphosis. The albuminoids are not properly burnt. The pregnant woman is eating for two, burning for two, eliminating for two. The one set of kidneys have more work than at any other time. If the kidneys do not work as they should, by and by they give way, but they may stand firm and do their duty. That would explain all of these cases. There was the great conundrum—why did some of these cases have Bright's disease and some not? We are now getting on the trail. Another thing: the cases of hystero-epilepsy I have seen are exactly like puerperal convulsions in every way, and it has been proved that some of these cases are due to paraxanthin poisons. All these things are the same. Now, in this uric acid diathesis these xanthin bodies are found, and, while all of us cannot spend the time and few of us have the training and much fewer have the ability to go into the laboratory and do this work, there is one thing we can all do, and that is run down the family history of these puerperal eclamptics. In these cases of hystero epilepsy I have always found gout or rheumatic history. In America

the form is sick-headache. After about the third or fourth generation of bone or joint troubles we have the nervous disturbances of gout, and most of these sick-headaches are forms of American gout. I wish the members of this Society would hereafter, as they come in contact with puerperal eclampsia, find out if there is sick-headache, gout, or rheumatism in the family. I believe, with the material you can all accumulate, we could get something worth something here. You can trace them back to the third, fourth, and fifth generation. That is the only thing I wanted to speak of.

DR. REAMY.—Do you regard the uric acid diathesis, so marked in these cases, as incident to the last condition prior to the convulsions? Do you regard it as primary or secondary, or an incidental association?

DR. JOHNSTONE.—In those cases of hystero-epilepsy which I have analyzed I have found that the uric acid diathesis is decidedly incident, going back to the third and fourth generation.

DR. REAMY.—Is the uric acid diathesis present, as a rule, in the women who have these convulsions?

DR. JOHNSTONE.—I do not know. I want to find out if it is. That is my experience; I believe it is. Now the thing is, let us find out if we can. I sincerely hope Dr. Stewart will be able to prosecute these experiments further, and I can only close by thanking him.

DR. JOHNSON.—If this toxemia occurs in both puerperal convulsions and hystero-epilepsy, why does it not kill in hystero-epilepsy?

DR. JOHNSTONE.—It does sometimes.

DR. JOHNSON.—Why should the percentage be greater in pregnancy?

DR. JOHNSTONE.—The pregnant woman is at the crest of the Stephenson wave all the way through, and the non-pregnant woman gets there only once in twenty-eight days, and that is when she has a convulsion.

DR. STARK.—That the cause of eclampsia is a toxic one no one will dispute, but that it is always the result of an absorption of a ptomaine or that it is due to retention of a leucomaine I believe we are not ready to accept. It has been shown by competent observers that there are many different toxins playing a rôle in the production of eclampsia. The creatin and creatinin, which are albuminoid products, have been found in the blood; furthermore, derivatives of glycogen—namely, acetone—have been found in the blood; furthermore, alkaloid bodies, the result of microbic formation, have been found; furthermore, colonies of microbes existing as emboli in vessels in the placenta, in the liver, in the kidneys, and even in the breast of the eclamptic woman, have been found, so that it is evident many different causes are operative in the production of eclampsia. One of the factors which I believe is operative in the production of this condition has not been mentioned, and that is the condition of the child. I am firm in the belief that the child or fetus produces something which passes to the

mother and brings about the eclamptic seizure. Only about seven weeks ago I delivered a woman of a child about five weeks premature, this child presenting all the evidence of infection, an infection which must have existed some time prior to its birth. The child was icteric, had a very large liver, had an elevation of temperature, had convulsive seizures, the convulsions occurring at short intervals for about thirty-six hours after its birth. I want to say, incidentally, that I succeeded in controlling these convulsions by exceedingly large doses, for an infant, of chloral hydrate. I believe that possibly the child furnishes the poison to the mother somewhat in this manner. We all of us know that in the vast majority of cases of eclampsia disease of the placenta is present. It is the common thing to find a trophic placenta and one which contains numerous fatty spots or white infarcts the result of emboli. Knowing the great rôle the placenta plays as a respiratory organ, as an excretory organ, as an organ that manufactures glycogen—possibly that is why, in a diseased state, acetone is found in the blood of the mother. The glycogen is imperfect, and we have acetone formed and have that passed into the circulation of the mother. Is it not possible that in the child we have an imperfect oxidation going on; that we have paraxanthin or other xanthin bodies passing on to the placenta to be converted to urea, but, the normal conditions of the placenta not being present, they passed through the placenta into the circulation of the mother, and, eventually irritating the kidneys, produced a diseased state of the kidneys, and their elimination is interfered with, and possibly also that of the liver, and these bodies are retained in the organism of the mother and thus set up a convulsive seizure? I have intended to make some investigations in this direction, and when I have completed them I propose to present them to the Society.

With regard to prognosis, I want to dwell upon that for a moment, and that is with reference to the recurrence of eclamptic seizures. Dr. E. W. Mitchell is about to deliver a patient whom I delivered of a child a few years ago, and she had an attack of eclampsia. The child was born dead. I inquired of Dr. Mitchell about a week ago whether this woman presented any prodromal symptoms of eclampsia. There were no promonitory symptoms. A woman who lived here at one time had an attack of eclampsia; she has since been delivered without a recurrence of the attack. So that it is not necessary for us to warn our patients against a subsequent pregnancy. I believe a good proportion of them can go safely through it. One of the very dangerous symptoms in connection with the prognosis is the prolonged coma. In connection with that I want to call attention to a case that Dr. Zinke saw in consultation with me, in which the coma with absence of the corneal reflex lasted over three days, and the urine was very scant in quantity and the albuminuria extreme, and still the patient recovered. With regard to the treatment, I am satisfied that all the remedies alluded to are efficacious, although I must say I



have not the greatest confidence in morphia, on account of its lessening the excretory power of the kidneys. But the induction of premature labor is a question that ought to receive more attention than it has at the hands of the previous speakers. If an eclamptic seizure is on, whether there be albumin in the urine or not, if the period of fetal viability has been reached I believe we should induce labor at once. I believe that to be a good rule, and the manner of inducing premature labor should be on the line of the Dührssen plan. In the case referred to I succeeded by the plan advocated by Marx, of New York, simply that of manual dilatation, and in three-quarters of an hour I had succeeded in completely dilating the cervix. I attempted to perform version, but had to content myself with applying the forceps, and delivered a live child and saved the mother. The child is now in good condition. I believe we should induce labor and deliver. I believe the proper thing is to dilate the uterus and interfere, even if labor has not set in. Introduce one finger and hold it there, then two, then three, etc., and secure complete dilatation; and if there are contraindications to podalic version, apply the forceps. If the eclamptic seizure is not on and we have the premonitory symptoms, then we may adopt the prophylactic treatment. But if the patient does not improve, as far as the symptoms are concerned, then I think we should induce labor as soon as the period of viability is reached.

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*Meeting of May 12, 1898.*

DISCUSSION OF PUERPERAL ECLAMPSIA (*continued*).

DR. C. D. PALMER.—Sir James Y. Simpson and Carl Braun had much to do with the early elucidation of the doctrine of the pathological etiology of Bright's disease of the kidneys, provoked or aggravated by pregnancy, as related to puerperal eclampsia. Albuminuria signified urea retention and imperfect urinary elimination. The consequence was blood contamination and resulting nervous phenomena, if not convulsions. So generally accepted was this pathology of the disease that all treatment was largely based upon its recognition.

Robert Barnes, some years afterward, had much to say about autogenetic causes and cases of puerperal fever, and within recent years we have been taught much about auto-intoxication. To-day we realize the tendency to, and dangers of, toxemia, in cases especially of pregnant women, by way of autointoxication from defective elimination of toxins. Perhaps there is no condition of the body, in health or disease, which is attended with such manifest tendencies for obstructions of normal elimination as that of pregnancy. From the kidneys in health there is a normal elimination, in twenty-four hours, of from five hundred to one thousand grains of urea. This amount in pregnancy is very frequently diminished. An equally defective elimination from the skin is also experienced



at this time. And the most important source of elimination, the intestinal canal, is almost invariably impeded. Defective action of the liver means cholemia. Retarded liver and intestinal evacuations mean defective sewage of the body. Impeded pulmonary action implies carbonic-acid retention. All of these functions impaired speedily lead to a general toxemia. Every one of these organs—kidneys, skin, intestines, liver, and lungs—are always more or less interfered with during pregnancy, either by reflex irritation or mechanical pressure.

Now, while these functions (all normal eliminators) are disturbed, we can easily understand how quickly one can poison herself.

The needs of normal elimination in quantity and quality depend on body conditions, such as its size, weight, and the demands of certain organs. Aside from the enlargement of the uterus and vagina during pregnancy, with their increased blood supply, no organ of her body is so much increased in bulk and force as is the heart. Of course, then, there is increased vascular tension, the needs of which must be apparent because of the physiological growth and development of the uterus with its contents, fetus and placenta. Moreover, the presence *in utero* of a growing fetus, with its cast-off effete products, implies an increasing need of eliminative action, as well as increasing the danger of autoinfection. The excreting matters of two bodies must be cared for; retained in the blood, they act as poisons to the nerve centres of the brain and spinal cord.

Not only is there an augmented vascular tension in the body of all pregnant women, but there is also an increasing nervous tension. Pregnancy in all women heightens the excitability and irritability of the nervous system; it also adds to the tendency to reflex action. This predisposition must be most manifest in nervous women, in primiparae, and in illegitimate pregnancies. It is a common observation that puerperal eclampsia is more oftentimes noticeable in these classes of cases.

That the kidneys are not altogether at fault in cases of puerperal eclampsia looks rational when you recognize the want of correlation between the presence and amount of albuminuria and the number, frequency, and force of eclamptic seizures. Much albuminuria and of considerable duration there is at times, with few or no convulsions; little albuminuria there has been with many severe, even fatal, attacks. Aside from the constitutional predisposition of pregnant women to attacks of eclampsia, a most plausible explanation of these uncertainties resides in the fact that there need not be, and is not, any fixed relation between the quantity of albumin lost and the urea retained.

Again, a more serious objection to the acceptance of the Bright's kidney lesion as the essential causative pathological entity of this disease is the occurrence of

(a) Cases of puerperal eclampsia in which on autopsic examination no kidney lesion can be detected.

(b) Cases of marked congestion of the kidneys or interstitial nephritis in pregnant women, without any eclamptic attack.

Look at the liver in these cases. Have not efforts been made to concentrate on this much-abused organ more than its due share of blame? Have not postmortems shown cases of eclampsia in which the liver was much, little, or not at all diseased? The liver is enlarged some, it is true; but it always is during pregnancy. Plainly may we say the kidneys are always, in all cases of pregnancy, at some time disordered in function or structurally diseased to some extent. But these disorders of function or changes in tissue are never uniform or constant. So with other organs as eliminators of the body. The tendency to, and the presence of, puerperal eclampsia are resultant on more than one or two factors. Probably the kidney factor is the most frequent.

Most fortunate, to my mind, is it that the consensus of medical opinion has taken the more broad and comprehensive view of the pathology of puerperal eclampsia, by concentrating our attention, not on one, but on many organs of the body, in determining the causation and judicious management of this frightful malady.

When the disease is threatened the first duty is to regulate the patient's diet. Have her depend largely, if not exclusively, on a milk diet. The kidney excretion is thereby made more free, and much less work is imposed on these disabled organs. A milk diet means a maximum of nutrition, an ease of digestibility, and a comfort to the kidney.

Freer diuresis may be favored by the liberal administration of certain mineral waters—the French vichy, our effervescing silurian or lithia waters. The increasing demands for oxygen can be obtained by freer ventilation, gentle outdoor exercise, and by loose clothing. Greater action of the skin is secured by warm baths followed by vigorous friction and hot packs. Liver and intestinal elimination may be promoted by an occasional mercurial followed by a saline cathartic. Undue nervous apprehension is to be quieted and emotional excitements allayed.

When the eclamptic attacks have shown themselves, besides the utilization of the means mentioned, the best remedies are morphia (hypodermatically) and veratrum viride. I have never given as large doses of morphia as were recommended by Clarke. A quarter of a grain, repeated at short intervals if necessary, when the convulsions continue, has been found satisfactory. Veratrum viride, it seems to me, is our most valuable and safe remedy. It can be given in all cases in doses of from five to twenty drops of Norwood's tincture, by the mouth or hypodermatically, in quantities sufficient to reduce the force and frequency of the pulse below 70 per minute. A large dose, inducing vomiting, becomes protected thereby. This medicine does not counteract but rather helps the action of the morphia.

It not only reduces the force and frequency of a full and

bounding pulse by safely depressing the cardiac action, but it diminishes general vascular tension, as does blood-letting, yet without the loss of any blood. Besides, it relaxes muscular rigidity and most noticeably diminishes nervous tension. These effects of the drug allay nervous excitability, tend to prevent the recurrence of the force and the frequency of coming eclamptic attacks. The liver, the kidneys, and the skin actions are also favored in functional activity. Of course, morphia hypodermatically allays the tendency to all reflexes and quiets the nerve centres.

I see no reason why veratrum viride should not entirely supersede blood-letting. It is apparent that excessive losses of blood may do harm and may even cause convulsions. Women do have convulsions from sheer losses of blood.

Chloroform, too, is apt to do harm, for its too free or long administration may unduly saturate the system with the drug—a positive danger.

Some experiences I have had with nitroglycerin in the treatment of this disease make me think that it is at times a remedy of no mean power. The indications for the administration of this potent drug are rapid and feeble cardiac action, cold and bloodless appearances of the surface of the body, and scant and insufficient kidney secretion. We all recognize the rapid and powerful effect of this medicine on the vascular apparatus by a dilatation of the arterioles, diminishing arterial pressure, relieving the heart's action, and overcoming internal congestions. Nitroglycerin is our most powerful vaso-dilator, hence useful when the arterial tension is high, as in chronic Bright's disease, especially when the vessels are not only contracted, but when the heart is beginning to undergo fatty degeneration. Arterial tension arises from the presence of some organic substances in the blood. Physiological action of the drug proves its diuretic action, and the diminution of body sensibility and susceptibility to reflex action.

As to the propriety of inducing premature labor in these cases and the utilization of the accouchement forcé, it is prudent to say: Hesitate not so to do when the means already suggested have failed or are failing; when, for reasons apparent, it is not best to allow pregnancy to continue, or time to pass for nature to complete delivery. Without any doubt, the mother's chances are better if the underlying causative factor is removed, labor being promptly yet safely terminated. Undue haste, however, may not only sacrifice the child, but also jeopardize the mother. There are no fixed rules in all cases. The best management consists in individualizing each case.

Therefore we can very safely and very properly say that we know the real nature of puerperal eclampsia and its judicious management much better than we did twenty years since. Does not the present rate of the mortality of the disease both to mother and to child—a mortality less than one-third of what it was—establish this fact beyond any controversy?

DR. GILLESPIE.—The view expressed as to the paraxanthin bodies being the sole cause of convulsions seems at variance with clinical facts. It is a well-known fact that convulsions which come on before labor are more dangerous than those which appear during labor, and those after labor are the least serious. I believe those cases which come on before labor are due wholly to the poisons retained in the blood, while those which come on later require the presence of the poison plus the nervous irritation of labor. The completion of labor removes the irritation, and the more promptly this relief is afforded the better the woman's chance of recovery.

DR. ROBERT W. STEWART.—The discussion has taken such a wide range—indeed, the whole subject is such a big one—that it would lead too far to attempt to answer every one.

1. The gentleman who watched the case in the wards of a German hospital in which nothing was done, the woman being simply allowed to lie in bed and have her convulsions *ad libitum*, will certainly confess that the whole world, including even Germany, writes and talks differently. Epilepsy, chorea, or hysteria was the probable condition. From Dührssen to Chambrelent the advice is constantly, "Do something," the only difference being between accouchement forcé and the use of drugs, hot packs, etc.

2. Acetone, creatinin, etc., have never been demonstrated as the cause of eclampsia; indeed, everything goes to show that they have nothing to do with it. Creatin is not poisonous, creatinin is a paralyzer; but is it not true that the leucomaines of this group are the results of disease processes and not of normal ones?

It has not been demonstrated that paraxanthin is the particular poison of eclampsia, and consequently one cannot say that the subject is clear.

3. The relationship between Bright's disease and eclampsia cannot be maintained, from the fact that in many cases of the last named no albumin was found in the urine. All recent investigations tend to show that the liver plays an important rôle. You are all familiar with the experiments of the Russian investigators with carbamic acid. Carbamic acid, which is nearly the same as uric acid and only one step below urea in the oxidation process, is not poisonous when fed to rabbits by the stomach; but when the blood is diverted from the liver and carried directly into the vena cava the carbamic acid is extremely poisonous to rabbits. In other words, the liver evidently renders the carbamic acid innocuous.

4. Arterial tension is probably increased under certain conditions in the pregnant woman, but that cannot be a potent cause of eclampsia, for the reason that arterial tension could only be a cause of the retention of some definite poison.

5. We do know that elimination is the important factor in prophylaxis, and one would not be far from the truth were one to say that accouchement forcé is the treatment for the attack.



# TRANSACTIONS OF THE ST. LOUIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

*Meeting of September 15, 1898.*

*The President, W. B. DORSETT, M.D., in the Chair.*

Present by invitation of DR. SAUNDERS: DRS. BRIBACH, MOORE, LYONS, and ZAHORSKY.

DR. E. W. SAUNDERS read a paper on

## THE SERUM TREATMENT OF STREPTOCOCCIC INFECTION, WITH REPORT OF FIVE CASES.<sup>1</sup>

DR. LYONS.—The case in which Dr. Saunders very kindly asked me to perform a postmortem (Case 3) has been extremely interesting to me from several points. The abdominal peritoneum was found to be perfectly healthy; the intestines and abdominal cavity showed no signs of exudations; there was no matting, no adhesions in any way; it retained its normal shining appearance. The intestine showed no changes, but, as there had been evidence of acute obstruction in the case, we searched for this. We found a fold of the ileum, which hung down in the pelvic cavity; there the peritoneum was intensely inflamed, covered with a fresh exudate. There was intense engorgement; the adhesions were so marked as to cause complete occlusion at several places. At no point was there any ulceration. The uterus was in an excellent state of involution; it was firm in its muscular tone; it was not examined microscopically. The left ovary was bound down by an old exudation—dense, firm, and fibrous. It was atrophic and cystic. The ovary on the right side was in a similar state, firmly bound down. The tubes were normal. In enucleating the right ovary the finger entered an abscess cavity in which not more than two or two and a half drachms of pus were found. Cultures were immediately made from this pus, and the subsequent investigations showed that it was a pure culture of staphylococcus pyogenes albus. The other organs macroscopically showed no degenerative changes.

DR. GLASGOW.—Did I understand you to say that both tubes were healthy?

DR. LYONS.—Yes, sir; they were in a normal condition.

DR. CROSSON.—Did you trace the source of infection from the uterus—the track of the infection?

DR. LYONS.—It was impossible to do that throughout the

<sup>1</sup> See original article, p. 65.



uterine cavity. It contained no débris at all and it was not boggy. It was firm, evenly involuted. We could not find the source of infection.

DR. BRIBACH.—I only want to make a few remarks about one case, and in that case I think the antitoxin did good. The young woman was a primipara, strong and healthy, who was delivered four days before I saw her. The lady who delivered her was most careful and she gave me a very intelligent account of the case. The patient was not infected by her, and yet it was supposed to be a case of erysipelas infection. I have seen two cases of erysipelas infection in puerperal women before, and they died within three days. Of course we cannot assume because one woman gets well from the use of the streptococcus antitoxin injections that her cure was brought about by the use of the antitoxin. Still, when we use the antitoxin and no other treatment and she gets well, we have a right, when we see the temperature falling and the condition improving, to conclude that the remedy is having a beneficial effect, particularly when we find the improvement following each injection. I will simply say that that one case makes me feel very hopeful, and I am inclined to use the serum again in a similar case, especially as we have nothing better. I think we have made wonderful progress in the treatment of puerperal fever, from the fact that we now will not have to curette the patient as often as we formerly did. I am satisfied that the indiscriminate curetting of these cases does harm. It is true that it is of advantage in some cases, but I think we have been in the habit of doing it too often. The use of the douche in puerperal fever is dangerous. We have learned that puerperal fever means puerperal infection, and that one fact has saved the lives of thousands of women. We know that the tremendous mortality of the lying-in institutions has been reduced. We know we can prevent infection; but so far as the treatment is concerned we are practically no better off than years ago. I do not think douching and curetting will influence the course of the disease, because it is out of our reach—it is already in the tissues. If it is a streptococcus infection and we use the antitoxin I think we will have a good result. We have nothing better. I think our old treatment is *nil*. If the patient had sufficient infection to overcome the vital resistance, she would die; if not, she would survive.

DR. MOORE.—I should like, in justice to myself, to make a little more clear the way in which this infection occurred. It was a case of precipitate labor; the fetus was born while the woman was attempting to evacuate the bowels. When I reached her everything was over and I expressed the placenta. There was no laceration of the perineum. It was not necessary to attempt any manipulations; she was not examined. The subsequent bacteriological examination of pus from the abscess showed a pure staphylococcus infection. The course of the whole case would seem to show that there had been

more than a streptococcus infection. It began on the twelfth day. Her temperature rose to  $102^{\circ}$ . She had not been examined up to that time. The introitus vaginae had not been entered at all. The diagnosis made was that of staphylococcus infection, and it was treated accordingly, with the result that the temperature came down in about three days. But after she was infected by this nurse, who gave a vaginal injection after coming from an old case of hip-joint disease, the lochia showed pure streptococci. The question is, where did the staphylococci come from? Did she have that before? And where did the abscess come from?

DR. DORSETT.—It was a mixed infection.

DR. MOORE.—That is one possible explanation—a mixed infection at the time the streptococcus infection was present. But the bacteriological examination did not show it. Her temperature became normal after she had used the serum for four or five days. It finally came down, and until the symptoms of obstruction set in she seemed to be doing very well. It is a very puzzling case altogether. All these injections were made into the abdominal wall. I think that is rather a bad plan, because it obscures the physical signs very much. For instance, we thought that we should make out matting of the intestines in the abdominal cavity; we thought there was a large fluid exudate.

There is another point that may be of interest. The symptom of perforation of the intestine so frequently mentioned, that of obliteration of the liver dulness on percussion, was markedly present in this case.

DR. ENGELMANN.—I have had no experience with the serum. However, I am very much interested in the matter. From what I can gather it appears to me that we will do well to use the serum that is made here and which is constantly under control. The reports have been so varying, the results are so varying, that we should be very careful as to the serum which we use. This subject was under discussion only a few weeks ago in the Boston Obstetrical Society, and two gentlemen reported cases in which the Fisch serum was used with success. I lay stress upon that, because you notice cases reported in the discussion in which the serum has proved harmless, in which it has proved advantageous, and others in which it has proved injurious. We have reached no conclusion as yet, but it appears to me that the European serum is far more uncertain than that which is made here and which is under constant observation, and I understand that in the Fisch laboratory it is kept under constant observation. At least it has been so represented to me, and patrons are at once notified in case the serum has deteriorated.

I would like to inquire if these are all the cases that Dr. Saunders has had, and whether he has not had any decidedly unfavorable results.

DR. SAUNDERS.—These are all my cases.

DR. ENGELMANN.—His results have been only good, and some of them are very striking cases. I think the doctor's experience differs from that of most others who have used it.

DR. DORSETT.—Those who have used Fisch's serum or any serum?

DR. ENGELMANN.—Well, the antistreptococcus serum. Fisch's serum is of very recent date, comparatively. I have always felt doubtful about the foreign serum; it undergoes atmospheric changes, and is apt to be lost sight of in some store until it is old and its value has become impaired; whereas, as I have said, the Fisch material is under observation and is much less liable to become deteriorated.

DR. FRANK GLASGOW.—I heard indirectly that the use of the antistreptococcus serum had been prohibited in Germany; at least my brother told me he ran across such a statement in one of the journals somewhere. I wish to make a few remarks in regard to these cases. I have followed them very closely, and the obstetrical cases, the postmortem cases, do not convince me that the serum was of any very great value. In the case in which there was a collection of pus, where the temperature came down to normal, and where there was a sudden rise of temperature, I could have predicted, even before the doctor told of the pus which had escaped, that that was what had happened; and here was a pretty fair test of the serum. I believe the infection existed from the beginning. But these cases prove nothing to me. The douche was used, and there was a characteristic dropping of temperature after the use of the douche; and where the douche is used right along the result is often quicker than it was in this case. The case of cellulitis, however, does prove something. That was the only case that proved the serum has any value at all, and certainly there the results were marvellous. That one case would induce me to try the serum.

There is one point I would like to mention. That is, when I asked Dr. Bribach if he used the douche he said no; there was no bad odor to the discharge, consequently he inferred there was no necessity to use the douche. I think the bacteriological examination in one of those cases proves that is a mistake. One of those cases was a virulent culture, whilst there was no odor. I think it is our duty to wash out all the cases as long as there is fever.

DR. LUTZ.—The very case that Dr. Glasgow thinks proves something is the case which I should pick out to show that it proves nothing. Now, as a matter of fact, lymphangitis does ordinarily result in suppuration. There are but few cases of infection by streptococcus or staphylococcus which result in suppuration of the glands. One of the common and ordinary examples is the so-called chancroidal infection, in which, as a rule, you have suppuration of the inguinal glands; and in that respect I can lay claim to perhaps quite a large experience. I do the operation—oh, well, possibly twice a week, of extirpation of the inguinal glands. Other cases of lymphatic infection,

lymphangitis following wounds of the hands or wounds of the foot, in which you have lymphangitis travelling up until finally the inguinal glands are reached, are cases in which, as a rule, suppuration does not occur. The cleansing of the local wound, curetting the suppurating area, use of bichloride or carbolic acid, with the administration of ferruginous preparations and such general therapeutic measures as are indicated by the condition, ordinarily result in resolution; and to my mind the streptococcus injection was absolutely negative, so far as the influence upon the disease is concerned. Now, the case in which the abscess was found in the pelvis was in all likelihood an infection such as ordinarily occurs when we have what is termed a mixed infection—an infection in which a bacteriological investigation demonstrates the presence of various forms of pus-producing bacteria. Instead of being a case in which an antistreptococcus injection was indicated, it was, according to my view, a case in which local measures were indicated; in other words, a laparotomy, a cleaning out of the pelvis. I do not see that in this particular case the issue was different from a pus cavity in the pelvis. No kind of immunizing serum injected there would produce any effect, no more so than the administration of quinine would. On the other hand, I would not like to be understood as objecting to the use of the streptococcic serum, or serum of any other kind, because I believe there is a great field which has been as yet but poorly explored, and I myself am in favor of using it as an adjuvant, but not as a sole and only reliance. I have had under observation three cases of tetanus which recovered under a course of treatment with tetanus serum, in one of which the question of insurance came up and the case was supervised by a gentleman who represents the insurance company, and naturally he leaned to the view that my patient did not have tetanus, and yet the symptoms of tetanus were marked—he had opisthotonos, locked jaws, and board belly—and under the injection of serum he recovered. But in opposition to that I can relate two cases, and perhaps I could find the record of a third case, in which the patients got well without the use of the serum. Dr. Friedman had under his observation two cases of trismus in children who recovered after the use of injections of the serum. So that even with this limited experience I am inclined to use the serum, just as I think a man would be almost criminally negligent who did not use antidiphtheritic serum; and yet I question whether it would be entirely satisfactory to rely upon it alone in the treatment of any of these affections. The first case of which Dr. Saunders presented the chart was, according to my notion, the ordinary septic curve, such as we see it now and have seen it before we knew anything about the serums, and in which the economy was evidently able to successfully cope with the infection. Whether or not the serum increases the phagocytosis of the white blood corpuscles is perhaps merely an opinion. I do not think the observations which have so far been made are final as regards the influence which the various serums have upon



the properties of the white blood corpuscles. On the other hand, clearly the tendency of modern practice and research is in the direction of the use of these serums. But, to repeat it again, I believe the use of the various serums should be considered merely as adjuvants; I do not think that we should rely upon the serum to do more than possibly to help the general economy to cope with and finally to destroy the bacteria which cause the infection. I have been more than delighted to hear the observations of Dr. Saunders; I think they are in the right direction; and, while I do not wish to appear as sounding a note of warning, yet there is such a thing as expecting too much in these cases; and when in a simple infection, which is ordinarily taken care of by the economy, we attribute the favorable issue to the use of the serum alone, I think we make a statement which is not warranted by the facts

DR. BROWN.—I have had no experience in the treatment of puerperal sepsis with the serum, but one case mentioned by the doctor is exceedingly interesting in regard to the source of infection. I think, from the pathological conditions revealed by the odor, and from the lowness of the infection, that it is probable that there was a pre-existing pathological condition which was closely allied to the labor, which would account in a measure for the infection. The doctor says there was no examination made until the twelfth day—that is, until after the temperature had risen from the condition found in the pelvis. However, from the characteristics of the adhesions described by the doctor, I am inclined to believe that there was a condition antedating the labor, which was lighted up by the labor, that in all probability would account for the infection. We frequently see this in cases where there is a pre-existing, quiescent pus tube that is lighted up as a result of the labor, and we have infection as the result.

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## TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

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*Meeting of October 5, 1898.*

*The President, C. J. CULLINGWORTH, M.D., in the Chair.*

DR. J. WALTERS and MR. A. R. WALTERS read a paper on a case of

### PUERPERAL SEPTICEMIA TREATED BY ANTISTREPTOCOCCUS SERUM.

Mrs. F., multipara, age 34, had a child in April, 1895. She again became pregnant in March, 1897. Severe flooding set in in May, followed by irregular hemorrhages and foul discharge, which lasted till April, 1897. The uterus was dilated and



freely curetted on May 9, with strict antiseptic precautions, and was afterward swabbed with carbolic lotion and with iodine liniment. On May 10 the patient was comfortable and the temperature normal. During the next five days there was slight fever and the remains of a macerated fetus were passed. On May 16 intense headache, urticarial rash, discharge more offensive, temperature  $98.5^{\circ}$  to  $102.5^{\circ}$ , pulse 100. The uterus was washed out with perchloride of mercury (1 : 2000). At 10:30 P.M. the patient had a severe rigor, and the temperature rose to  $104.5^{\circ}$  and the pulse to 120. On May 17 the tongue was dry, the temperature  $101^{\circ}$  to  $103^{\circ}$ , pulse 120; ten cubic centimetres of antistreptococcus serum were injected. At 8:30 P.M. the patient was bright and cheerful, and the skin moist; temperature  $98^{\circ}$ , pulse 80. On May 18 headache returned, and the temperature rose to  $100.5^{\circ}$ , the pulse to 100; a second injection of ten cubic centimetres of serum was given, and the temperature fell to  $98^{\circ}$  and the pulse to 75. The second injection was followed by very great depression, which lasted for several days; there was also transient albuminuria. The patient recovered, and the authors stated that there could be no reasonable doubt that the recovery was entirely attributable to the use of the serum.

DR. AMAND ROUTH said it was difficult to be sure in any given case, when several methods had been adopted, that the successful ending was due to one of the methods only. Out of five or six cases treated by himself, one had recovered from the septicemia as a result of the antistreptococcus serum alone. It was not wise to inject so potent an agent unless it had been previously ascertained that the infection was due to streptococci, and the ordinary treatment, especially removal of all debris, should not be omitted.

DR. EDEN also thought it very important to ascertain the nature of the infection before using the serum. In Dr. Haultain's series a different form of infection was present in each case; in one the Löffler bacillus was present and the case was successfully treated by the diphtheria antitoxin.

DR. ROBINSON agreed that it would be interesting to ascertain what microbe was producing the disease; but he feared that this would be practically impossible. He had investigated a number of cases bacteriologically, but the results had been unreliable. Out of seven cases he had treated with the serum five had died, the treatment apparently having no effect. Two of the cases recovered; in one of these the only effect was that the patient seemed to sleep better afterward; in the other patient, who had on the eleventh day a temperature of  $104^{\circ}$  and a pulse of 120 and membranous vaginitis, the injections of the serum were followed at once by a fall of temperature, and the patient rapidly convalesced.

DR. MCCANN said it was probable that more than one microbe was the cause of puerperal septicemia. He suggested that the serum should also be used as a preventive in cases where sepsis would be likely to follow.

THE PRESIDENT said that he did not quite agree with the opinions that had been expressed that the serum ought not to be administered until it had been definitely ascertained that the offending microbe in the cases under observation was the streptococcus. He thought, as streptococci were usually present, we ought to give the serum without waiting for bacteriological investigation. The safe rule of practice was to explore the uterus digitally with the finger under an anesthetic (decomposing débris should be removed by the finger, and reliance must not be placed upon the douche), and then to administer the serum without delay.

DR. JOHN PHILLIPS had administered antistreptococcic serum in several cases, but in only one was he certain that the patient's recovery could be attributed to its use. The patient had been ill for many weeks with acute septicemia. Curettage had failed to produce benefit. Twenty injections were given in the course of twelve weeks. The temperature, which was very high, was always lowered, the delirium ceased, and the skin acted, the effect lasting several hours. In this case repeated examinations of the discharges for streptococci gave a negative result.

DR. TATE had seen several cases treated by the serum, and in some of them the results appeared to be good. In one case the first injections were followed by improvement, but afterward failed to give relief; possibly this case was one of mixed infection.

DR. CULLINGWORTH read a paper on

A CASE OF EARLY ECTOPIC GESTATION (TUBO-UTERINE ?)  
COMPLICATED BY FIBROMYOMA OF THE UTERUS.

The patient, age 33, was admitted into St. Thomas' Hospital on September 4, 1897, said to be suffering from retroversion of the gravid uterus. Attempts had been made to reduce the supposed displacement, but without success. The patient had had one child nineteen years ago, and had last menstruated during the last week of April, 1897. Five weeks later she fell down some steps and had pain in the back and abdomen. This passed off, but returned three weeks later and continued, gradually increasing in severity. A fortnight before admission clots were passed, and since then there had been an offensive discharge, and for the last five weeks sickness every evening.

Further attempts were made to reduce the supposed displacement. On October 5 the patient was examined under ether, and the diagnosis was made that the uterus was enlarged by fibroids and that there was also a pelvic hematocele due to an arrested tubal gestation. On October 21 an operation was performed and the fibroid uterus and gestation sac removed. After careful examination of the parts removed the author concluded that the gestation was originally tubo-uterine and that the fetus had been extruded either into a diverticulum of the tube (which was more probable) or into the abdominal cavity.

MR. ALBAN DORAN observed that in pure tubal pregnancy the fetus and placenta have been found to be in separate dilations (Chaput's case). Hence in the President's case the fetus possibly lay in a true diverticulum of the tube. Rupture had occurred early; but the membranes had partly protruded to stop up the leak, and the fetus had slipped into the protruding part, the placenta remaining behind.

DR. AMAND ROUTH thought that Mr. Doran's explanation was probably correct.

DR. ARTHUR GILES referred to a case which he had published in last year's Transactions, which also simulated retroversion of the gravid uterus.

DR. CULLINGWORTH, in his reply, said that this was the first case that had occurred in his practice in which a tubal pregnancy had involved the intramural portion of the tube.

*Meeting of December 7, 1898.*

*The President, C. J. CULLINGWORTH, M.D., in the Chair.*

#### THE DEVELOPMENT OF THE GRAAFIAN FOLLICLE.

DR. HUNTER gave a demonstration of specimens illustrating the development of the Graafian follicle, and exhibited a series of ovaries preserved in formalin in which the colors were well maintained.

#### UTERINE FIBROIDS.

DR. LEWERS showed (1) a large solitary subperitoneal fibroid tumor of the uterus (nine and a half pounds) successfully removed by laparotomy with intraperitoneal treatment of the stump; (2) a uterus with multiple fibroids (eight pounds) successfully removed by supravaginal hysterectomy with intraperitoneal treatment of the stump. He said that, as regards the history, symptoms, and signs, cases of large solitary subperitoneal fibroids differed remarkably from the common cases where the uterus was the seat of multiple fibroids. In his first case the patient, married ten years, had had five children and two miscarriages, the last ten months prior to operation. Menstruation had never lasted more than two days, and for ten months prior to operation there had been complete amenorrhea. The uterus was in no way deformed, except at the place where the tumor was attached, and the cavity was of normal length.

In the second case the patient, married five years, had not been pregnant, menstruation was profuse, and there had been constant metrorrhagia for three months before operation. The uterus was deformed and the sound passed seven or eight inches.

#### CONGENITAL TUMORS AT INTERNAL OS CAUSING HYDROMETRA.

DR. HERBERT SPENCER read a short communication on three cases of congenital tumor at the internal os uteri causing hydro-

metra in new-born children. Two of the specimens had been briefly described in the catalogue of the gynecological specimens in University College Museum, published in 1891, and were, as far as he was aware, the first recorded instances of the occurrence of this tumor. The tumor was a small, sessile, pea-like body situated at the summit of the anterior median column of the cervical arbor vitæ and gave rise to dilatation of the cavity of the body by obstructing the outflow of mucus. Dr. Spencer thought the tumor might later in life produce pain at the menstrual or other times, and might perhaps explain the occurrence of certain polypi at the internal os uteri which were furnished with glands lined with several layers of epithelium—a condition he had met with in this situation in new-born children. He directed attention to a recent publication by Dr. Friedländer<sup>1</sup> on a similar condition in young girls.

#### INCARCERATED OVARIAN DERMOID DURING PREGNANCY.

DR. HERBERT SPENCER showed a small multilocular dermoid tumor of the right ovary which, being incarcerated in the pelvis, he had removed by laparotomy at the fourth month of pregnancy. Pain, which had been present before the operation, at once ceased on removal of the tumor, and the patient had five months later been successfully delivered of a living child at full term.

Dr. Herbert Spencer also showed for another practitioner a small ovarian dermoid tumor which had been incarcerated in the pelvis at the time of labor. Forceps and afterward version had been employed, with the result that the tumor was ruptured and the patient died of septic peritonitis three days after delivery.

DR. JOHN PHILLIPS said that he had met with a case in which the cyst had obstructed labor and necessitated its incision and suturing to the vaginal walls before delivery could be effected. A year later the patient was seized with a rigor and abdominal pain, and at the operation a large suppurating dermoid cyst was found with a coil of hair adherent to the old scar in the vagina; the patient made a good recovery. Dr. Phillips had recently had an impacted dermoid complicating early pregnancy, which had been successfully removed.

DR. GILES mentioned a case of an ovarian dermoid removed during pregnancy. He first saw the patient when she was three months pregnant, and decided to wait and see whether with the progress of pregnancy the cyst would rise out of the pelvis; as this did not happen, the cyst was removed by abdominal section, and the patient was expecting her confinement shortly.

#### PLACENTA PREVIA AND FIBROIDS.

DR. BOXALL showed a uterus with interstitial fibroids from a case of placenta previa centralis. The patient died forty minutes after delivery, from ante- and postpartum hemorrhage.

<sup>1</sup> Archiv für Gynäkologie, 1893.



In her previous confinement, three years ago, a large fibroid was noticed in the lower pole of the uterus on the left side, and an abscess formed and burst into the vagina, the sinus in which still remained. The fibroid had shrunk considerably since the previous labor.

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## BRIEF OF CURRENT LITERATURE.

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### GYNECOLOGY AND ABDOMINAL SURGERY.

**The Effects Produced in the Female by Castration.**—Pfister<sup>1</sup> reports 179 cases of castration from the County Hospital of St. Gallen in whom he traced the immediate and subsequent effects produced by the removal of the ovaries. The investigation comprised the effect of castration upon menstruation, vicarious bleeding, *molimina menstrualia*, the *libido sexualis*, change in the sexual organs, general condition of the body, the influence upon the nervous system, and finally the therapeutic effect of the operation.

It is well known that after castration menstruation generally disappears. This view, first expressed by Hegar, agrees with the experience of most operators. In Pfister's cases menstruation continued in 5 per cent. The cause for this is probably best explained through Pflüger's theory. According to this theory ovulation is absolutely independent of menstruation. The nervous impulses from the ovary to the uterus travel through the ovarian nerves and the centres in the lumbar enlargement. The function of the ovaries is constant and non-intermittent. Through the gradual growth of the Graafian follicles the minute nervous filaments located in the ovarian tissue are irritated, which irritation is transmitted to the spinal nerve centres, to there accumulate until sufficient impetus is acquired to produce a reflex upon the vasomotor nerves of the uterus and ovaries. If at this particular period the ovary contains a follicle, the increased secretion of liquor folliculi suffices to burst the follicle; if not, the reflex wave passes without producing any changes in the ovaries. At the same time the uterine mucous membrane has been transformed into a *decidua menstrualis*; the reflex hyperemia affects the already distended capillaries until they rupture and thus form the menstrual blood. The impulse from the nerve centres supplies the finishing touch to the menstruation; and if this impulse occurs at a period when the uterus does not contain a *decidua menstrualis* there can be no discharge of menstrual blood. Therefore the periodical appearance of menstruation depends, the first of all, upon the regular formation of a *decidua menstrualis*.

Usually the two functions necessary for menstruation appear simultaneously, and for most individuals it is the rule to menstruate every four weeks. Under some conditions one or the other factor of menstruation may be delayed and menstruation



then becomes irregular. The dependence of menstruation upon the functions of the ovaries shows that with the removal of these organs menstruation must cease, and if menstruation continues after castration it is evident that particles of the ovarian tissue escaped observation and were not removed. In such cases menstruation will continue until the entire remaining ovarian substance is used up. In some cases, although menstruation ceases, there occurs at irregular intervals vicarious bleeding—that is, an exudation of blood from other organs at the time when the menstrual period would normally occur. Pfister mentions 12 such cases, in 2 of which there was a well-marked intestinal hemorrhage and in another copious vomiting of blood. In the remaining cases vicarious menstruation was principally expressed by bleeding from the nose. Less typical, but still with a certain amount of regularity, castration shows its influence upon leucorrheal discharges.

Already Hegar and others have drawn attention to the fact that after castration there is apt to be a decided increase of leucorrhea. With the progressive atrophy of the genital organs the discharge gradually lessens and finally disappears altogether. An exception to this are the cases in which the ovaries were removed to influence the growth of the uterine fibroids. In this class of cases the discharge continues and is apt to increase. Phenomena usually observed after castration are various pains and discomforts which appear at the time and instead of the menstrual period, and which are grouped under the term of *molimina menstrualia*. When the factors of menstruation are remembered the etiology of the symptoms is understood. The symptoms complained of vary in character; they are both local and general—flushes, nervous disturbances, sensations of heat followed by chilliness, vertigo, meteorismus, backache, abdominal pains, pains in the region of the ovaries, and also a bearing-down feeling and weight in the pelvic organs. These symptoms are most severe in the first months following the operation; they are apt to last about two years, and finally disappear entirely.

Pfister's investigations as to the *libido sexualis* are quite extensive and certainly important, because it is *the one point* upon which both patient and husband desire full explanation. To better understand the effects of castration upon this function it is advisable to briefly recapitulate its physiology. Here again the theory of Pflüger appears to be the most rational and conclusive one. The sexual activity of women depends largely upon the functions of the ovaries. The distension of the Graafian follicles reacts upon the ovarian nerves and is reflected upon the lumbar ganglia, from where erotic sensations emanate. To this are added the reflexes produced by body contact, all of which combine and result in the *libido sexualis*. From this it may be seen that the latter function also necessitates two factors, and that the absence of the ovaries is likely to diminish the sexual desire. At a period of sexual excitation the smallest external influences can arouse the *libido sexualis*,

while at other times, when the sexual desire is not strong, even marked influences may pass without any effect. The glans clitoridis contains numerous nerve filaments, which end in the ganglia of Krouse. From the latter ensue the sensuous sensations during the actus, while the desire to intercourse originates in the ovaries. Thus the ovaries contain the nerve centre, so to speak, of sexual desire, while from the nerve terminals of the glans clitoridis proceed the impulses to the brain, there to be perceived and which cause the final orgasm. Some observers state that the ovaries intensify the actions of the clitoric nerves. Practical experience, however, shows different results. Then Pfister found in nearly 50 per cent of his cases no diminution of the libido; in the remaining cases the desire was lessened, and in some it entirely disappeared. It should be noted, however, that in most of the cases belonging to the latter category this function was diminished, or even absent, prior to the operation, being due in part to age, in part to protracted invalidism. Another important factor influencing the extent of the libido is whether the person is single or married. In married women the brain has received previous impressions which, to a certain extent, keep awake and prolong the period of sexual activity.

During the natural climacterium the ovarian substance changes into connective tissue, and the other genital organs, especially the uterus, become atrophic. Various authors have shown that after castration similar changes occur. The uterine atrophy is marked. Less constant are the changes in the vagina. Pfister's investigations show various instances in which this organ remained unchanged. As to the mammary glands, which must also be classed as genital organs, the results following castration are different. In some women the breasts become atrophic, while in others a decided increase in size was noted.

At the time of the normal climacterium the female body undergoes manifold changes, manifesting themselves in different parts of the organism. An especially marked phenomenon is the increase of adipose tissue. The expression of the face is changed, caused by a broadening of the lower jaws and greater prominence of the cheek. The waist increases in diameter and the hips grow broader and more massive. The uniform distribution of adipose tissue gives to the youthful individual the well-rounded and pleasing appearance. This changes with the advent of the climacterium, at which time the fat is deposited in parts in large quantities, while in other regions it disappears, leaving the skin loose and giving rise to the formation of furrows and wrinkles. After castration there is also a tendency to the formation of fat deposits, and in more than 50 per cent an increase of the body weight was noted. There is, however, a difference between the changes of the natural and the artificial climacterium. After the latter the women retain their youthful appearance, and the fat deposits retain their symmetrical character and preserve the rounded contours of the body. In fact, castration seems to preserve ap-

pearance, and the changes of age appear later and are less marked. The hair is apt to retain its color, with an increased lustre. The complexion is clearer and wrinkles are rarely present. Even the eyes become more expressive and brighter. The hips and loins do not increase in width. The breasts, although smaller in size, remain round and firm and do not become flaccid and dependent as after the natural climacterium. The growth of superfluous hairs at the upper lips and other parts of the face, which so often disfigure the faces of women past the menopause, rarely appears after castration. The changes which after the natural climacterium appear quickly occur very gradually after castration and may extend over a period of years. There is, however, a certain regularity with which these changes take place. Pfister's investigation comprised 13 cases. In all of these menstruation ceased absolutely and was followed by an atrophy of the uterus; there was also a marked increase in the weight of the body, which in some of the cases amounted to obesity.

The influence upon the nervous system is quite marked and well pronounced. Most frequently women complain of flushes, varying in severity, and which may last from a few months to several years. It should, however, be noted that in about one-half of the cases similar symptoms existed prior to the operation. The patients describe a peculiar sensation arising in the abdomen and extending upward toward the heart and lungs, giving rise to a feeling of heat and fulness in the head. Palpitation of the heart, vertigo, and buzzing in the ears may exist at the same time, but is frequently absent. The face appears congested and feels warm. The patient, however, complains of a chilly feeling extending down the back, especially in the centre, usually followed by profuse perspiration. These symptoms are most pronounced immediately after the operation and become more marked at regular intervals, which to a certain extent simulate the time of menstruation. In some cases these symptoms are most severe and produce actual suffering, while in others they are slight and hardly noticeable. In the latter cases the flushes soon fail to appear. Women very frequently complain of a headache having the character of true migraine. In many cases this has existed prior to the operation, but there are indubitable cases in which the headache appeared for the first time after the operation. A less frequent symptom is vomiting and nausea, also neuralgic pains involving the nerves, especially those of the lumbar plexus. Palpitation of the heart, hoarseness, inclination to cough, and insomnia are rarer symptoms. The nervous symptoms following castration are certainly more intense than those of the climacterium, probably owing to the fact that the loss of ovarian function is sudden and not so gradual as during the natural menopause, thus causing a greater shock to the nervous system. In judging the influence of castration upon the nervous system the fact must not be lost sight of that quite a number of patients have been sufferers for years, often to such an extent that they

willingly embrace every opportunity to procure relief and are anxious to undergo an operation. It seems but rational that in such cases the nervous system is also affected and that many of the symptoms predate an operation and are not altogether the result of castration. Pfister found from his inquiries that a depressed mental condition is the exception after castration, and in quite a few cases the patients became more cheerful and of a more sanguine temperament. As to the loss of memory, Pfister noted in 74 cases a decided weakening of the memory; in 38 cases no change was observed. Regarding the therapeutic result of the operation, Pfister states that a comparison before and after the operation showed decided improvement and that the result of the operation is apparently very favorable. In many cases years of suffering gave way to comparatively good health, and pronounced invalids became enabled to attend to their household duties. In the letters which were received in response to inquiries, many patients expressed themselves in terms of deep gratitude, and, although suffering from minor discomforts, most of them state that they enjoy comparatively good health.

**Value of the Female Reproductive Organs in their Relation to Operations.**—R. C. Lucas<sup>2</sup> concludes as follows: 1. The female reproductive organs exert a remarkable influence on the development of the woman apart from their procreative function. 2. Maturity having been attained, the procreative function outweighs in importance the nutritive influence exerted on the various tissues of the body through these organs. 3. From a national as well as domestic standpoint the procreative function of woman is her richest dowry; so that in a young woman, whenever possible, it should be preserved to her by conservation of an active ovary. 4. With the approach of middle life the ovaries decrease in value and may be more freely sacrificed to prolong the life of the individual. 5. The ovaries exert throughout life a certain influence on associated organs, and perhaps to a less extent on all the organs of the body. 6. This influence, formerly attributed to reflex nerve action, by many is now thought to be due to an internal secretion from these organs. 7. The removal of normal ovaries (Battey's operation) has failed as a cure for neurones, and cannot be too strongly condemned for such cases, especially in young subjects. 8. The same operation for fibromyomata of the uterus has often proved of great service in reducing the tumors by hastening the menopause. 9. Kelly, impressed by the importance of the internal secretion theory, has lately recommended conservation of one or both ovaries when the uterus is removed, which is a reaction into somersault on Battey's operation. 10. Battey's operation has lately been suggested by Beatson for the cure of inoperable cases of cancer. Remarkable shrinking of the tumors of the breast and glands has been noticed to follow the operation in women who had not reached the menopause, but complete cure seems never to have been obtained.



**Endometritis in the Virgin.**—W. N. Hunt<sup>3</sup> reports a case of this kind. As curettement was strongly objected to, he used hot injections. He states that when giving these injections the patient should be in the recumbent position with hips elevated. The quantity of the injection should be large and slowly given, so that the time occupied will not be less than ten minutes. The temperature of the water should be about 105° F. at first, and should be increased about two degrees each day until it is as hot as the patient can bear it. He adds to each gallon of water a handful of common salt and a teaspoonful of alum. He obtained a cure in the case reported by ten hot injections alone, but he advises curettement whenever the consent can be obtained.

**Psoas Abscess in Women.**—E. Van de Warker<sup>4</sup> believes the anterior cul-de-sac offers some facilities in reaching the fossa that the posterior route does not possess. It is usually necessary to insert drainage. This must never be gauze, for gauze never drains, but it must be a tube, either glass or rubber. A point to bear in mind is the important and practical one, namely, that a patient may go months with such a pus accumulation, possibly with no temperature at all, but as soon as the abscess is opened a serious rise of temperature may occur in from three or four days to a week. A tube allows thorough irrigation of the cavity. At the same time air must be carefully excluded, as he is satisfied that oxygenation can revitalize sterile pus, or air in contact with the products of the germ renders the ptomaines active. This is his explanation, but it is a clinical fact, no matter how explained, and the only remedy he knows of is efficient and thorough irrigation, and for which he uses sterile water. He reports a case which came under his care, which terminated fatally because irrigation was delayed too long.

**Immediate and Remote Results of Seventy-one Alexander and Seventy-one Suspensio Uteri Operations.**—W. L. Burrage<sup>5</sup> states that in the Alexander operations he obtained good results in all except 6 cases. Of these, 5 were fair and 1 a failure. Pregnancy has occurred in 19 per cent of the cases. In the suspensio uteri operations the results were good except in 5 cases; these had mural abscesses. Pregnancy has occurred in 12 per cent of these cases. His conclusions are as follows: 1. The Alexander operation is preferable to the suspensio uteri operation because it seeks to support the uterus by its natural ligaments. 2. The Alexander operation is indicated in retroversion, retroflexion, and retroposition without ovarian disease. 3. In retroposition with tight utero-sacral ligaments, posterior colpotomy for the purpose of dividing the tight ligaments may be performed with advantage together with the Alexander operation. 4. In ovarian prolapse, especially if the ovarian ligaments are long, the Alexander operation cannot be depended on to raise the ovaries into a normal position. 5. One round ligament is not sufficient to maintain the uterus in place. 6. The Edebohls operation is the prefer-



able operation, because by it the round ligament, being uncovered in the entire length of the inguinal canal, is less liable to be broken; also, because this method does away with the need of anteverting the uterus bimanually in the course of the operation; and, finally, because of the secure manner in which the ligament is anchored and the inguinal canal closed, making subsequent hernia impossible. 7. Although the Alexander operation leaves two scars on the abdomen, they are so situated as to be covered by the pubic hair and are subsequently less of a disfigurement than is one scar in the median line. 8. The suspensio uteri operation is indicated in retroversion, retroflexion, and reposition with ovarian or tubal disease, whether inflammatory affections or prolapse. 9. The best method of performing the suspension is by means of absorbable ligatures passed through the anterior and upper portions of the fundus uteri and through the parietal peritoneum and transversalis fascia only. Thus an elastic band is created between the parietes and the uterus which maintains the uterus in place and does not cause interference with the enlargement of the anterior fundus during subsequent pregnancy. 10. Suspensio uteri leaves but one weak spot in the abdominal parietes predisposing to hernia, instead of two as in the Alexander operation. 11. In the great majority of cases neither operation is the cause of complications in subsequent pregnancy. Whatever complications do occur are not of a serious nature. 12. In all cases of doubtful diagnosis, in which the condition of the ovaries and tubes cannot be determined accurately, the suspensio uteri operation is to be preferred to the Alexander operation.

**Treatment of Cystocele.**—A. Routh<sup>6</sup> describes an operation for cystocele as follows: The cervix is drawn down and an incision is made transversely in front of the cervix, and the bladder is stripped off the front of the uterus as in vaginal hysterectomy. The anterior wall of the vagina is then seized by its cut edges and drawn down toward the vulva, and the bladder is stripped off its under surface and turned up out of the way. An incision is then made longitudinally along the centre of the vaginal flap, running from the centre of the transverse incision to the neck of the bladder. The two resulting triangular flaps are then placed in position and made to overlap, and the redundant portions cut away both along the transverse and longitudinal incisions. The points of the lateral flaps should be drawn down and sutured to the central point of the transverse edge. Then the raw edges should be sutured along both longitudinal and transverse lines. This shortens the vagina in both directions. It is a good plan to suture the supravaginal cervix to the vaginal wall. He states that it is useless to expect a cure unless the bladder is completely stripped from the vagina and uterus. He has tried this operation and obtained good results.

**Conservative Surgery of the Ovary.**—C. Martin<sup>6</sup> states that the physiological value of the ovaries may be best realized

by noting the results of complete extirpation of both glands. These he gives as follows: (*a*) Sterility; (*b*) cessation of menstruation in 95 per cent of the cases; (*c*) atrophy of the uterus, and, to a less extent, of the vagina and vulva; (*d*) the abrupt and violent appearance of the nervous symptoms of menopause, and a generally unstable condition of the nervous system; (*e*) abolition of sexual instincts; (*f*) obesity. If one ovary, or even only a part of an ovary, be left behind, none of the above-named symptoms appear. He urges gynecologists to give a fair and unbiassed trial to the conservative surgery of the ovary. He has now performed abdominal hysterectomy for various conditions 42 times (13 "clamps," 29 pan-hysterectomies). In 27 of these he removed both ovaries with the uterus; in 15 he was able to leave one or both ovaries behind. He has performed 40 vaginal hysterectomies for various conditions. In 13 cases he removed both ovaries with the uterus, and in 27 he was able to save one or both ovaries. He has been able to trace the after-history of most of these cases, and he does not know of a single case in which this conservation of the ovary has led to any untoward result.

**Conservative Management of Uterine Inflammation and Displacement.**—I. A. McSwain<sup>7</sup> believes the more common diseases and displacements of the womb may and ought to be managed by the general practitioner as successfully as diseases of other organs; that a physician should make a thorough examination and thoroughly treat a case before he refers it to a gynecologist. He also states that the general practitioner should study and treat general or constitutional disorders, which in many cases contribute to or complicate the local disease.

**Endocarditis Gonorrhoea.**—Sieghéim<sup>8</sup> reviews the literature pertaining to this disorder, and also reports a new case recently observed. A woman who had been suffering from leucorrhoea suddenly became ill and complained of abdominal pains, vomiting, and severe chills, the latter repeating themselves daily. Physical examination showed lungs to be normal, and a systolic murmur with rapidity of pulse. A few days later the area of heart dulness increased, a diastolic murmur appeared, and the pulse became intermittent. To these symptoms were added during the next five weeks dyspnea, nephritis, cystitis, and enlargement of the spleen. At the expiration of this period the patient died. Postmortem examination revealed an ulcerative endocarditis of the aortic valves, nephritis, cystitis, and endometritis. Attempts to obtain blood cultures during life were negative. The blood found in the heart and scrapings from the cardiac valves also produced no growth of bacilli. Microscopic examinations of sections obtained from the structures of the heart, however, demonstrated unmistakably the presence of gonococci, and thus the case was a gonorrhoeal endocarditis appearing without previously involving the joints. It is interesting to note that with the advent of the cardiac symptoms the vaginal dis-

charges almost ceased, to appear later with increased severity. According to Finger, the cessation of discharges is caused by the rise of temperature.

**Classification of Peritonitis.**—After studying the statistics of 106 cases of peritonitis which came to autopsy in Johns Hopkins Hospital, Simon Flexner<sup>9</sup> classifies this disease as follows: The primary or idiopathic forms of peritonitis are restricted to a definite and small number of cases of terminal infection, and, unless the resistance of the peritoneum is broken down through local lesions or general disturbances, this cavity is eminently capable of protecting itself against injurious chemical and living agents. A second variety of peritonitis conducts itself in every way like surgical infections; and the conditions that protect the tissues generally from, or predispose them to, infection may be seen in operation here. Finally, a third variety is dependent upon disease in an intraperitoneal organ that brings pathogenic micro-organisms and other extraneous (chemical?) substances directly or indirectly into the abdominal cavity, thus breaking down its resistance and exposing it to infection from within.

**Vaginal Hysterectomy for Carcinoma Uteri.**—C. G. Cumston<sup>11</sup> believes that in a case of pregnancy complicated by carcinoma, if the neoplasm has extended so far that hysterectomy will be of no avail, local and general medical treatment is all that can be done. If it is supposed that pregnancy may go to term, if there is no pelvic tumor or induration of the vagina or cervix which would render labor difficult, the disease must be let alone, the patient's strength being sustained by suitable tonics, vaginal irrigations frequently and freely used, and proper dressings in cases of serious symptoms, such as hemorrhage, etc. On the other hand, if the life of the woman is in danger on account of a long and difficult labor, produced by a neoplastic infiltration of the vagina and cervix, it is proper, he thinks, to produce artificial labor. Vaginal hysterectomy for cases of fibroid coexisting with epithelioma is only rarely indicated, but if the non-malignant neoplasm is small the vaginal route will give fewer chances of infecting the wound with carcinoma. The presence of carcinomatous metastasis in the ovaries is an absolute contraindication for any operation. The presence of cystoma of the ovaries or inflammation or suppurating lesions of the surrounding organs is in no way a contraindication to the vaginal operation for carcinoma.

**Moot Points in the After-treatment of Cases of Abdominal and Vaginal Section.**—Christopher Martin,<sup>24</sup> surgeon to the Birmingham and Midland Hospital for Women, discusses briefly certain points in the after-treatment of cases of abdominal section. On some questions he is at variance with the teaching of distinguished abdominal surgeons. The great aim of the surgeon should be to prevent the occurrence of complications—rather than to treat them after they have arisen—by the careful preparation of the patient beforehand, by the skill-

ful performance of the operation itself, and, above all, by the attainment of perfect asepsis. Prevention is ever better than cure, and an extra half-hour's work before an operation is worth a week of anxious after-treatment. It is a wise rule in abdominal surgery, as in other mundane affairs, to let well alone. If the case be progressing favorably, if the patient have no bad symptoms, be content, be thankful, and avoid fussy interference. You can hardly make her any better, and you *may* make her a good deal worse. Some surgeons unnecessarily restrain their patients after operation as regards position. They keep them rigidly on their backs for forty-eight hours, not even allowing the nurse to turn them gently on to the side. This restriction is cruel and needless. Let the patients lie in the attitude that is most comfortable to them, and allow the nurse to turn them from time to time. It is not necessary to cover the abdomen with a cradle, though it does no harm.

The dressings should be simple. Cover the incision with a pad of iodoform gauze. Over this a square of lint is laid and fixed with three or four bands of rubber plaster. Over all an ordinary abdominal binder is pinned. The gauze should be changed at the end of twenty-four hours, and after this it need not be disturbed for a week. The aim should be to keep the wound as dry and clean as possible. Wet dressings are an abomination; they simply promote suppuration. Do not dust wounds with boracic acid powder or iodoform powder, except in septic wounds, when use iodoform freely. Powders are apt to form unpleasant crusts or cakes which delay the healing process. For similar reasons do not seal the incision with collodion.

For suturing the abdominal wall silkworm gut is an ideal material. Do not use buried sutures, and never suture the abdominal wall in layers. Catgut, even if aseptic, dissolves too soon, and silk, no matter how carefully sterilized, is apt to become infected and cause abscesses and sinuses. Buried sutures of silkworm gut frequently work out, months after the operation, by a process of quiet suppuration. Invariably use silkworm gut, applied as an interrupted suture passing through the whole abdominal wall. Leave the stitches in for twelve or fourteen days, and sometimes longer. It is a great mistake to remove the sutures, as some surgeons do, as early as the sixth day. The longer the wound, and the more likely the patient to vomit or cough, the longer should the sutures be allowed to remain. Stitch abscesses ought never to occur in a clean case. Still, they do occasionally occur. If only one stitch suppurates remove it at once. If all the stitches suppurate remove those which are the worst. If all be equally bad remove alternate stitches, leaving the others in for two or three weeks to support the wound during the process of granulation.

Five or six years ago the rule was, "When in doubt, drain." Now it is, "When in doubt, don't drain." Drain in septic and



suppurating cases or where there is much bleeding. But do not consider that a little clean blood or ovarian fluid in the abdomen does any harm—in fact it may, on being reabsorbed, have some nutritive value. A drainage tube is apt to be a channel of infection, and may convert an innocuous effusion of blood into a stinking collection of grumous pus. When you have to drain use iodoform gauze rather than the glass or rubber tube, and if possible drain through the vagina. The glass tube quickly becomes shut off by lymph from the general peritoneal cavity and then ceases to be of any service. Moreover, if either a tube or a gauze drain be left in the abdominal wall more than forty-eight hours the track is apt to heal by suppuration, a weak spot is left in the abdominal wall, and a ventral hernia will probably result. Harm seldom results from a vaginal gauze drain.

Always give a dose of morphia at the close of an abdominal section, either hypodermatically (one-quarter grain) or by suppository (one-half grain). It diminishes restlessness, combats shock, tides the patient over the first few hours of agony, lessens the tendency to hemorrhage, and in many cases lessens the tendency to vomiting. This single dose of morphia is not sufficient to paralyze the bowel or to interfere with the purgative treatment of peritonitis should this complication subsequently occur. Morphia may do good in those anxious cases where, some three or four days after the operation, the patient is worn out with frequent vomiting, pain, and want of sleep—and is getting into a condition of dangerous prostration and restlessness. In such cases there is generally some degree of peritonitis, and, therefore, it would seem that morphia was contraindicated. If, however, the patient's bowels have acted freely, give morphia. In the great majority of cases the patient sleeps, the vomiting ceases, the pulse becomes slower and stronger, the prostration passes off—in fact, the administration of the morphia marks the commencement of her recovery.

It must not be supposed from the above that Martin has abandoned the purgative treatment of peritonitis and reverted to the old opium treatment. If a patient, after, say, an ovariectomy, develop on the second, third, or fourth day the well-known symptoms of peritonitis (vomiting, tympanites, quick pulse, anxious face, dry tongue, etc.), give at once five grains of calomel, and follow it, in the course of two or three hours, with a sharp saline purge (sulphate of soda or a Seidlitz powder). In mild cases give repeated small doses of calomel (one-tenth grain every hour) until the bowels act freely. Where there is constant retching these small doses of calomel are generally retained, while the saline draught is at once ejected. In addition order a turpentine enema to be administered every four hours and the flatus tube to be passed frequently. The patient's strength should be maintained by nutrient enemata of brandy and beef tea (each nutrient enema being given an hour after each turpentine enema). If she be much exhausted



give champagne freely by the mouth. Even if she be vomiting it is less exhausting for her to have something in her stomach to bring up than to retch ineffectually. There can be no doubt that, in an ordinary case of post-operative peritonitis, if we can purge the patient she will probably recover, whilst if the bowels refuse to act she will probably die. As long as her pulse is maintained we should persevere with the calomel and enemata until her bowels move. It is marvellous how tolerant these patients are of big doses of calomel frequently repeated.

What is the explanation of the beneficial action of purgatives in peritonitis? (1) They withdraw fluid from the congested portal veins and so promote absorption of intraperitoneal effusions. (2) They probably modify the functions of the liver in such a way that it is enabled to better cope with and destroy the poison absorbed from the peritoneum. One function of the liver seems to be to prevent the passage into the general circulation of toxins absorbed either from the intestine or peritoneum: the liver cells either destroy these toxins or excrete them in the bile. (3) Purgatives mechanically remove these excreted toxins from the intestinal canal. (4) Calomel probably acts in some degree as an intestinal-disinfectant, inhibits the formation of flatus, and possibly exerts a restraining influence on the development of micro organisms in the peritoneum. (5) Purgatives, by stimulating peristaltic movements, combat the tendency to paralysis of the bowel, diminish the tendency to intestinal adhesions, and mechanically remove flatus. Some surgeons, impressed with the beneficial effect of purgatives in peritonitis, have gone to extremes and have made it a routine line of treatment to purge every patient on the second day after an abdominal section. This is unnecessary. If the patient have no bad symptoms, no distension, no sickness, etc., there is no need to worry her with purgatives and enemata. If she be doing well we need not bother about the bowels till the fourth day, when, if they have not acted naturally, she may have a saline aperient, a dose of licorice powder, or an enema.

Forty-eight hours' deprivation of fluid is not only cruel but unnecessary and harmful. Seldom keep a patient more than six hours without fluid. Start by giving her some bland fluid, such as barley water flavored with lemon, and of this allow a pint during the first twenty-four hours. In cases where there has been much loss of blood give it very freely. Even if the patient be sick give her barley water, as it is less distressing to her if she has something to vomit than to retch ineffectually. Never give ice to patients after abdominal section. This early administration of fluid is not only merciful, but does good. It diminishes shock and restlessness, fills the depleted blood vessels, and by washing out the kidneys helps to remove toxins from the system. It does not interfere with action of purgatives should peritonitis ensue. On the second day, in addition to barley water, allow milk, milk and soda,

tea, water gruel, or small quantities of beef tea or chicken broth. On the third and fourth days allow milk pudding, on the fifth day fish, and on the sixth day a little boiled chicken. In cases of persistent vomiting, shock, hemorrhage, or exhaustion, give champagne freely by the mouth, and brandy and beef-tea enemas. In grave cases enemas of hot salt water (one drachm of common salt to the pint) and injections of saline solution into the submammary cellular tissue are of very great value.

After vaginal section the vagina is packed moderately firmly with iodoform gauze, and in vaginal hysterectomies the upper end of the gauze is passed into the peritoneal cavity. Remove the gauze packing on the seventh or eighth day, by which time the general peritoneal cavity is securely shut off by lymph from the vaginal canal. If the gauze be removed too soon there is some danger of prolapse of the intestine or omentum into the vagina. For the first four days after a vaginal section it is advisable to draw off the patient's urine by the catheter; after that she is allowed to pass it naturally. Before and after each act of micturition or each passage of the catheter the vulva should be gently bathed with a 1:2000 corrosive sublimate solution or some other reliable antiseptic. The catheter (preferably of glass) must be kept scrupulously aseptic. The only dressing that need be applied to the vulva is a pad of sterile gauze freely dusted with iodoform. For at least a week after the gauze packing has been removed I do not allow the vagina to be douched, for fear of breaking down the protective barrier of lymph and forcing the discharges into the peritoneum. In cases of vaginal hysterectomy I use silk ligatures, and I leave them long. They act as a drain, and usually separate about the third week. If by the end of the fourth week they have not separated, I cut the loops with scissors and remove them. Otherwise the knots are apt to become firmly embedded in the vaginal cicatrix, and, as long as they remain, cause an annoying purulent discharge.

If a patient who has undergone either an abdominal or a vaginal section have recovered without any complication, she may sit up in bed on the fourteenth day, get out of bed on the fifteenth or sixteenth day, and (if in hospital) go home during the fourth week. Patients who have undergone abdominal section should wear a well-fitting belt for at least two years after the operation, otherwise a hernia is very apt to form.

No hard and fast rule can be laid down which applies to all cases. Every case must be treated on its merits. The age, strength, habits, and temperament of the patient, the coexistence of other diseases, the character of the operation, and the special complications met with during its performance, must all be borne in mind and duly considered in deciding on any special line of after-treatment.

**Results of the Ries-Clark Operation for Carcinoma of the Uterus.**—Ries<sup>26</sup> finds reported 15 cases with 3 deaths. This immediate mortality is astonishingly low, and it appears

even lower when we take into consideration the causes of the fatal results. In Clark's fatal case death ensued a number of weeks after the operation, in consequence of disease of the kidney. In Ries' case the operation was performed when palliative treatment would have been better. On the other hand, it is very likely that a number of cases have not been reported because the results were unsatisfactory. So much, at any rate, may be stated: the operation, if performed with all necessary preparations and precautions, and if not extended beyond its proper limitations, is not necessarily more dangerous than an abdominal hysterectomy without removal of glands. The method which with slight changes has been used in Ries' 3 cases is as follows: The patient is prepared for the operation by a preliminary act which consists in thorough curettement and cauterization of the carcinomatous surface. This is done under an anesthetic the day before the main operation, and the same anesthetic is utilized for a careful search for enlarged pelvic glands palpable through vagina, abdominal walls, or especially rectum. In the beginning of the main operation the carcinomatous surface is shut off from the field of operation by a suture of the vaginal portion if the cancer is inside the cervix, or by a vaginal cuff closed over the vaginal portion if the cancer is located on the portion. Now everybody who has participated in this work either steps out from the rest of the operation or disinfects himself afresh. Fresh instruments, sponges, towels, etc., are used for the rest of the operation. The patient is placed in very steep Trendelenburg position. Incision from pubis to umbilicus. After the intestines have sunk back toward the diaphragm, the surgeon inspects and palpates the pelvic organs and the large blood vessels from the aorta down to Poupart's ligament and to the uterine artery. If during this examination enlarged and immovable glands are found, it is advisable to cut the operation short and to do only such palliative work as will afford as little danger to the patient's life and as much protection against hemorrhage, discharge, and pain as possible. If there is no such enlargement of the glands the operation continues as follows: First the right infundibulo-pelvic ligament is ligated close to the pelvic wall, a clamp covers the broad ligament between ligature and uterus, and the ligament is cut through between ligature and clamp. Now the peritoneum is incised along the common iliac vessels, and the vessels are further exposed by blunt or sharp dissection. Pushing the peritoneum back toward the side, one soon reaches the ureter, which crosses the common iliac vessels on or near their bifurcation. The ureter is then laid bare from the brim of the pelvis down to its point of entrance into the bladder with the aid of an incision through the peritoneum of the vesico-uterine pouch. As this is done under the constant guidance of the eye, there is no danger of injuring the ureter. The blood vessels which are cut in this procedure are ligated or temporarily provided for with clamps. The uterine artery is plainly seen in this dissection at a point where it crosses the ureter, and can easily be ligated at its starting point from the

hypogastric outside the ureter and under the guidance of the eye. After the ureter is thus laid bare and uterine and ovarian vessels are secured there is remarkably little hemorrhage from the procedure which follows now and forms the most important new step in this operation: the removal of the lymphatics with the surrounding fat and connective tissue. This is done by blunt or sharp dissection. The area which was cleaned out in this way extended in Ries' cases over a surface limited by the lateral edge of the external iliac vessels superiorly, the pelvic wall laterally, the bladder anteriorly, the pelvic floor inferiorly and posteriorly by the mesorectum, which, however, was lifted up and freed from all accessible glands. The glands which were removed in this way will be discussed more fully below. Bleeding vessels are ligated, or when the hemorrhage comes from the side of the uterus it is checked by clamps or simply by pulling hard on the uterus. Two edges of the peritoneum remain after the whole broad ligament and all the fat and connective tissue along the large vessels and the pelvic wall are removed. Now, if adhesions exist between uterus and rectum, these adhesions are cut as close to the rectum as possible, because such adhesions sometimes form the path along which carcinoma spreads. Then the procedure as done on the right side is repeated on the left side, special attention being necessary here in order to empty the mesorectum as completely as possible without injuring too much of the hemorrhoidal vessels. The ureter and uterine artery are treated in the same way, and the removal of fat and connective tissue with the lymphatics is performed to the same extent as on the other side. Again the peritoneum is left open, hemorrhage stopped by ligation of the blood vessels. Small arteries supplying the lymphatic glands have repeatedly given rise to some hemorrhage and were easily secured by ligatures. The round ligaments are severed close to the anterior abdominal wall. Now the peritoneum of the cul-de-sac is incised close to the rectum, and the vagina is perforated here either against the finger of an assistant or against gauze introduced into the vagina. The vagina is severed after its walls have been secured by ligatures. The uterus is in this way freed all around and is removed. We have now to deal with a wound which can be closed toward the peritoneal cavity by suturing the peritoneal edges left in removing the broad ligaments and the uterus. This suture runs across the bottom of the pelvis in a transverse direction, uniting laterally the edges of the peritoneum of the vesico-uterine and recto-uterine pouches, and in the median line peritoneum of bladder and rectum. Before this part of the operation the space between peritoneum and cut edges of the vagina is filled with iodoform gauze if there is any oozing, or if everything is perfectly dry the cut edges of vagina and peritoneum can be united so that vagina and peritoneum are both closed and no dead space is left between them. Now closure of the abdominal wound follows. The patients receive the same after-treatment as other laparotomy patients, and may get up as early as any of them. None of Ries' cases were uncomplicated. In all



of them pyo- or hydrosalpinx and the concomitant adhesive peritonitis made the operation a little more difficult than it would have been without these. Besides, adenomyoma of both uterine horns was observed in the first and third cases.

Ries' first paper concerning this method stated very distinctly that the improvement of the prognosis of carcinoma of the cervix which this method was expected to bring about was only in the greater safety from recurrence, but the method was not to be applied to cases considered inoperable by any other method. It was therewith said that the method was to be used just in those cases which hitherto had formed the most undisputed domain of vaginal hysterectomy and the field in which it had been most successful. It was expected that a method which seemed comparatively safe as to immediate recovery, though unsatisfactory as to remote results, was to be abandoned for a method which appeared new and strange and inordinately difficult—and all this only for the sake of some possible improvement of results in the distant future. Was it really necessary to make the exchange? The answer to this very justifiable scepticism has been given with the aid of the extensive operation better than by any postmortem evidence which had been collected before this advance of surgery. And the answer is as follows: The extensive operation is harder work, but vaginal hysterectomy as a radical operation for cancer of the cervix must be and is a failure and a delusion. The lymphatics removed in the extensive operation prove this beyond any doubt on microscopic examination. Every surgeon ought to be impressed with the conviction that on account of the frequent invasion of the lymphatics at a time when the primary carcinoma of the cervix is quite small, nothing short of the removal of the lymphatics will afford the slightest degree of security against recurrence; in other words, the extirpation of the lymphatics along with uterus, tubes, ovaries, and ligaments is an absolutely necessary step of any operation for cancer of the cervix which aspires to the presumptuous title of a "radical operation." Even though all the lymphatics within reach be removed, cases will be observed which are not radically cured by the extirpation of the pelvic lymphatics. In the operation for carcinoma of the cervix the surgeon is always hampered by the proximity of organs which are too important to be extirpated or even resected without very forcible reasons, and the distance between the cancer and these organs, bladder and rectum, is very often so small that a local recurrence is to be dreaded even though recurrence in the pelvic glands may have been prevented by their extirpation. Another organ which was an obstacle to the extension of the operation in a lateral direction, the ureter, can now be successfully withdrawn from the field of operation if it is dissected out and held aside. Aside from the danger of local recurrence in the walls of the bladder or rectum, the surgeon meets with another difficulty if it has to be decided how far the extirpation of the lymphatics has to be extended. In the part of the body with which our special work is concerned the difficulties of extensive removal of lymphatics are far greater than,



for instance, in the axilla in cancer of the breast. To go far above the bifurcation of the aorta abdominalis in an effort to secure the lumbar lymphatics would be an undertaking the danger and uncertainty of which are out of proportion to the result attainable. Possible that even here an improved technique may produce unexpected progress. If, however, we limit ourselves to the pelvic lymphatics, in order not to make the operation too long and the injuries too extensive, we have to consider what laws obtain in the invasion of the lymphatics, in order to know to what extent we have to dissect out the blood vessels and lymphatics. At the time when Ries' first paper was published there existed no surgical experience in this field, and the anatomical researches gave the information that the glands along the internal iliac vessels are the nearest to the uterus and therefore most likely to be infected. Poirier's work on about 300 female pelves came to this result. A recent paper by Peiser gives a report of very careful investigations based on successful injection of the pelvic lymphatics through the cervix in 17 cases, 12 new-born or very young girls and 5 adults. Peiser finds that certain glands can be injected with greater or lesser regularity. He uses the following terms for the lymphatic plexus, following herein Cruveilhier: 1. External iliac glands laterally from the external iliac vessels. 2. Hypogastric glands in the space between external iliac and hypogastric vessels. 3. Lateral sacral glands on the lateral parts of the anterior surface of the sacrum (the medial sacral glands belonging to the rectum are located in the mesorectum). 4. Lumbar glands located along common iliac vessels and aorta and inferior vena cava, the bifurcation of the aorta marking the border between inferior and superior lumbar glands. The glands which receive most frequently the lymphatics of the cervix are those between the external and internal iliac vessels, which Poirier terms internal iliac, and Peiser hypogastric glands. These glands form the first station on the lymphatic road from the cervix. Less frequently the lateral sacral glands are direct recipients of the cervical lymphatics. These glands are usually close to the hypogastric vein, or even on it. This group was found in direct communication with the hypogastric glands only in 2 cases. The sacral glands are in communication with the lumbar glands. In 2 cases Peiser observed at the lateral edge of the common iliac artery near its bifurcation an external iliac gland in direct communication with the cervix. With these two exceptions the external iliac glands were not found in direct relation with the uterus, but receive their lymph through communication with the hypogastric glands and give it off to the lumbar glands higher up. According to Peiser, therefore, the lymphatic current from the cervix runs into the following channels: Two to four lymphatic trunks issue from the cervix. Two to three of them follow the uterine artery at the base of the broad ligament, crossing the ureter, the hypogastric vessels, obturator artery and nerve, and terminate in the two or three hypogastric glands. Their efferent vessels cross the external iliac vessels and go to the external

iliac glands and to the inferior superior lumbar glands along the lateral edge of the common iliac artery. Besides this system another one issues in one or two trunks from the cervix, following first the broad ligaments, then turning backward takes its course in the sacro-uterine ligament to the posterior pelvic wall, where it terminates in one or two sacral glands located near the bifurcation of the common iliac vessels. These send their efferent vessels to the corresponding sacral glands of the other side and to the inferior lumbar glands, which on their part communicate with the superior lumbar glands where the lymph of cervix and body of the uterus come together. The glands which Peiser calls lateral sacral glands are so close to the hypogastric vessels that they are seen and removed easily whenever the hypogastric vessels are laid bare for the removal of the internal iliac glands. It is the same with the uppermost of the external iliac glands, but the lower external iliac glands, which are in direct or indirect communication with the hypogastric glands, require a special extension of the peritoneal incision. This part of the operation does not make the operation any harder, as this portion of the vessels is free from branches and therefore easily laid bare. At least this holds good as long as the glands are not firmly adherent to these blood vessels. If they are firmly adherent it is better not to insist on their removal, as under such conditions it is extremely probable that other glands which cannot be reached are already infiltrated.

One of the greatest errors which have been committed in gynecology has been caused by the statement that the macroscopic border line of a cancer of the cervix practically corresponds with the actual limit of the cancerous growth. Though this statement has issued from some of the best gynecological pathologists, it is entirely wrong, and the sooner we come to recognize that the better. For this erroneous statement is at the bottom of all the insufficient treatment of cancer of the uterus, chemical, electrical, surgical, or otherwise. We have positive knowledge that cancer of the uterus, though apparently small at its primary seat, is just as apt as any other cancer to form early metastatic growths, preferably in the lymphatics of the pelvis, and that this fact must not be set aside in the selection of a method of operation.

#### OBSTETRICS.

**Pregnancy upon the Fimbria Ovarica.**—Voigt<sup>11</sup> reports a case of ectopic gestation in which laparotomy was performed for internal hemorrhage. Fetus and placenta were removed without difficulty after ligation of the uterine and ovarian arteries, but the placental site continued to bleed and the already anemic woman perished from loss of blood. The post-mortem examination showed on the right side of the uterus two well-developed ovaries, distinctly separated from each other,

and three Fallopian tubes, of which, however, only one entered the uterus. The case was at first diagnosed as a primary abdominal pregnancy, but a more careful examination proved that the ovum had engrafted itself upon one of the ovarian fimbriæ. The literature contains only two similar cases, one reported by Zweifel and another by Martin.

**Pregnancy in a Rudimentary Cornu.**—Sereinskoff<sup>11</sup> describes a case of pregnancy in a rudimentary horn. The woman was a primipara. The symptoms not being very serious, the patient was kept under close observation. Laparotomy was performed as soon as the symptoms became aggravated. When the abdomen was opened it was found that the sac had already ruptured and the fetus had escaped into the abdominal cavity. The fetus presented numerous deformities, probably caused by the limited space in which it had developed, and died shortly after delivery. The major part of the sac was resected and its intraligamentous portion drained into the vagina. The recovery of the woman was normal.

**Ectopic Pregnancy.**—H. C. Dalton<sup>12</sup> reports a case of ectopic gestation which went on to term. The child was removed through a median incision, but only lived four hours. The mother made a good recovery.

J. Oliver<sup>13</sup> reports a case of this kind on which he operated at the fifth month. The placenta was attached to the anterior abdominal wall. Convalescence uneventful.

Warszawski<sup>14</sup> describes two cases of ectopic pregnancy, both advanced to nearly full term. The first case concerns a woman 33 years old, who became pregnant for the first time after being married thirteen years. At the normal terminus of pregnancy labor pains appeared, which lasted for about two weeks. The patient came under the observation of Neugebauer five months later, at which time ectopic pregnancy was diagnosed and laparotomy performed. Upon opening the abdomen the left tube was found to be enormously distended and containing a full-grown fetus dead and macerated. Owing to numerous adhesions the sac could not be removed, but its summit was stitched to the abdominal wound and drained. Recovery. The second case was a multipara, who stated that she was ten and a half months pregnant. Laparotomy disclosed an intraligamentous tubal pregnancy with nearly full-term fetus dead about two months. The sac was treated similarly to the first case, but to hasten the expulsion of placental remnants the sac was also drained into the vagina. Recovery.

**Uterus Bicornis.**—F. Blume<sup>10</sup> reports a case of double vagina and two complete uteri. He operated and removed the vaginal septum. The patient has borne two children since the operation, both labors being normal.

**Edema of the Placenta and Leukemia of the Fetus.**—Siefert<sup>11</sup> reports the case of a woman with a previous history of three normal confinements. In the last, that is, the fourth pregnancy, she suffered from excessive albuminuria and other symptoms of an acute nephritis, sufficiently grave to warrant

the induction of premature labor. The fetus, which perished soon after birth, was edematous, also the large and spongy placenta. Blood examinations of the mother showed a watery condition of the blood; that of the fetus contained an excess of white blood corpuscles. The author has collected similar cases out of the literature and expresses his belief that the diseased condition of the placenta and fetus was due to the nephritis of the mother.

**Septicemia.**—E. A. Lermite<sup>13</sup> reports a case of septicemia treated by antistreptococcus serum which terminated in death. He believes that to have success by this treatment you must commence giving the serum as soon as a diagnosis is made. Furthermore, the initial dose should be as large as twenty cubic centimetres.

**Antistreptococcic Serum in Puerperal Fevers.**—C. E. Paddock<sup>15</sup> treated two cases of puerperal fever, due to streptococci infection, with serum and obtained very good results. He believes the serum should be given early and the initial dose should be twenty or thirty cubic centimetres.

C. E. Williams<sup>23</sup> also reports a case treated with antistreptococcus in which he obtained good results. In this last case a microscopic examination was not made.

**Saline Transfusion in Puerperal Eclampsia.**—L. E. Neale<sup>16</sup> advises the use of the ordinary normal salt solution for transfusion in cases of eclampsia. Transfusion into the tissue under the breast is the preferable method. He reports 3 cases treated by this method, in which he got good results.

**Icterus of Pregnancy.**—W. B. Young<sup>17</sup> reports 3 cases of jaundice during pregnancy. Two of the cases were of a malignant form, and the other simple jaundice. The simple case and one of the malignant cases recovered.

**Three Cases of Plague in Pregnant Women.**—B. H. F. Leumann<sup>18</sup> reports 3 cases of pregnancy complicated by the plague. Of these three women, two came into the hospital in a pregnant condition, and one aborted at the beginning of the tenth day, while the other left the hospital without any abortion having occurred. The third case aborted before admission. All of the cases recovered.

**Perineum in First Labors.**—J. W. Bullard,<sup>3</sup> after having consulted Etheridge, Davis, Byford, Mundé, Martin, Hirst, Baldy, Coe, and Montgomery as to the proportion of lacerations during the first labors, has found it to be on an average of 30 per cent, or nearly one in every three. All of the above-named except Etheridge recommend that all tears involving more than the fourchette should be immediately closed by suture.

**Bandaging and Rest for Mastitis.**—J. B. Jackson,<sup>19</sup> as soon as he discovers the existence of an inflammation of the breast of any grade of severity short of an abscess, at once interdicts nursing, friction, pumping, fomentations, in fact all measures except such as are calculated to secure rest. He envelops the affected gland in absorbent cotton and applies a



roller bandage so as to support the gland. At the end of twenty-four hours the bandage should be removed, and if all is doing well it should be again applied, a little tighter than before. By the above treatment he has obtained about 90 per cent of cures. If there is an abscess he incises the gland and breaks up the pus pockets, then packs the cavity with iodoform gauze.

**Symphiseotomy.**—R. C. Bruist<sup>20</sup> reports 2 cases of this variety. In both cases the children were born alive, and the after-results of one case were very good, but in the other the symphysis is still movable. He believes that this operation in domestic practice, where things are less convenient for the surgeon and there is a great increase of details for which he is responsible, does not essentially sacrifice any condition necessary for the patient.

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## DISEASES OF CHILDREN.

**Adenoids and their Complications in Children.**—F. E. Kittredge<sup>1</sup> emphasizes the importance of recognition and removal of these growths. Few diseases are so easily diagnosed as the post-nasal growths of children, few diseases so often overlooked outside our large clinics, and fewer still of equal prevalence capable of causing so much future trouble. The nose is fully as much an organ of respiration as an organ of smell. It has another extremely important function, that of ventilating the middle-ear chambers. Post-nasal hypertrophy not only requires that the child shall breathe more or less entirely through the mouth in proportion as its size may be large or small, thus preventing proper preparation of the inspired air, but, equally important, lying as it does between the two Eustachian openings, sometimes pressing upon the Eustachian eminences themselves, it prevents the proper amount of air entering the ear. It is necessary that the air pressure anterior and posterior to the drum membrane shall be equal. Exhaust the middle chamber and there will be a retraction of the membrane, which finally becomes permanent, and a degree of impairment of hearing must result. In addition to the obstruction of air, a true suppurative otitis media may occur as a result of the adenoid mass. Noakes claims that not more than 5 per cent of his cases escaped ear complications. A Russian writer found the hearing affected in 130 out of 175 cases. Blake and



Meyer give a record of about 87 per cent. Of the cases upon which the author has operated, 40 in number, about two-thirds have given evidence of some degree of deafness, some of them quite marked, and he adds that following operation the ear symptoms were noticeably relieved in all cases, entirely so in many. Nearly all cases present the same typical picture: the half-open mouth, indicative of nasal stenosis; the broad, flattened appearance at the root of the nose, which apparently widens the distance between the eyes; the narrow, pinched look of the face; an appearance of stupidity; frequently a curiously vacant, semi-idiotic appearance. The parents usually bring the child to a physician either for a so called catarrh or for earache or for discharge from the ear. They may come simply with a story of noisy breathing at night. Almost invariably the child sleeps with the mouth open. Another prominent symptom is an excessive discharge of mucus or muco-pus from the nose. It will sometimes be found that the child cannot speak distinctly. A cough frequently accompanies these cases, being due to the secretion passing down the posterior wall of the pharynx, or from reflex origin. Many reflex nervous symptoms are liable to result, such as incontinence of urine. Many an apparently stupid child has proved to be a very bright one upon the removal of some obstruction to oxygenation. Who, with a severe cold, feels the same mental activity and ambition to work that he enjoys with a clear head? The child with a post-nasal growth sufficient to partially obstruct respiration is continually suffering from the same feeling in an exaggerated form. In the author's opinion there is practically but one proper method of treatment, which is thorough extirpation. He does not mean to imply that every child having an hypertrophy of the lymphatic tissue of the throat should undergo an operation, for undoubtedly there are cases of adenoid enlargement where no harm has resulted and none threatens; but he would emphasize that in all cases where there is positive obstruction, in cases where, though the obstruction be slight or wanting, ear, catarrhal, or nervous symptoms have developed, there should be no hesitancy as to operative measures. In removal of the pharyngeal tonsil Kittredge prefers the use of the Gottstein curette, though he frequently makes use of the Löwenberg forceps. In removing those in the fauces his preference is for the Ermold amygdalotome, a modification of the Mathieu. All the tonsillar tissue should be cut away. There is less danger from hemorrhage if completely enucleated than if the tonsil is cut through its centre. In cases where the anterior or posterior pillars are firmly adherent to the tonsil, it may be impossible to encircle with the tonsillotome until the adhesions have been separated; such tonsils, and those having a broad, flat surface, are more easily removed with long curved scissors. In cases where only diseased portions are to be cut away, or where for any reason it is not desired to extirpate the entire tonsil at one sitting—and this would usually apply only to older children or adults

—a most useful instrument is Farlow's punch. The writer desires complete anesthesia, chloroform being preferred, in operating upon both pharyngeal and faucial tonsils. In the removal of the adenoids alone partial anesthesia will frequently be sufficient.

**Anorexia, Severe Hysterical, Ending in Cure.**—Kissel<sup>2</sup> reports the case of a 14-year-old girl who had had two attacks of hysterical paralysis and who had refused to eat for twelve days. Her family history was both nervous and syphilitic, and she was greatly emaciated. She was completely isolated from her friends and made to eat after the stomach tube had been used and protested against. There was not the slightest esophageal stenosis, although she complained that she could not swallow. After swallowing one or two mouthfuls she regularly complained of great abdominal pain, but when left alone she became quiet and apparently felt no pain whatever. Within a week she was eating and enjoyed her food. She insisted that she never felt hungry.

**Bronchitis, Subacute, in Infants and Children.**—E. M. Dupaquier<sup>3</sup> says that it is now a clinical aphorism that the influence of infection from the intestine is of practical importance in respiratory disorders. It is, indeed, a common occurrence in pronounced cases of gastro-enteritis that the intestinal germs pass into the blood and invade the lungs. Such cases are usually acute infections of violent and rapid course, too often fatal. In a less degree we remark the relation of abnormal digestion and chronic bronchial troubles; yet Comby insists upon classing improper alimentation among the most prevalent causes of chronic bronchitis. In a still much less degree the relation between the intestine and bronchi can be suspected when the digestive disorders are, so to say, latent, for in such cases autointoxication is a slow process, and the dyspeptic symptoms are hardly noticed and reported by children. One of the general symptoms and distant manifestations of this slow process of autointoxication is repeated and stubborn attacks of bronchial catarrh. There is a low fever and coughing, with secretions, lasting several weeks at a time. It is not like an attack of acute bronchitis, lasting at most one week and vanishing spontaneously. It is not like chronic bronchitis, where fever is absent and where cod-liver oil, iodides, and arsenic will bring about improvement. In the subacute form alluded to any such medication may aggravate rather than ameliorate the symptoms. This class of patients has inherited a gastro-intestinal taint. Nearly the entire management of these cases of bronchitis is contained in the vital question of feeding. For infants medication is limited to antiseptics of the mouth (boric acid), stomach, and intestines (calomel, and enteroclysis with boracic solutions), and antiseptics of the bronchi, as Robin says, by vomiting (ipecac, hot water, and salt). The milk supply must be seen to be perfect, and open air and bathing, with other hygienic measures, must be prescribed. In older children strychnine and cinchona

may be used in addition to the antiseptics used in the case of infants.

**Earache.**—George L. Richards<sup>4</sup> discusses the causes and treatment and the relation of the exanthemata to this ailment. In furuncle of the external auditory canal incision should be made as soon as pus forms, though it must be remembered that the amount of pus is small. Before pus forms medicated gelatin bougies may be applied. The author recommends a simpler remedy in the form of a five per cent solution of carbolic acid in pure glycerin. If incision is unavoidable it should be done under primary anesthesia by chloroform or ether. Earache in children is more often due to acute trouble in the middle ear, and in the majority of instances this trouble is due to extension of inflammation from the nose and naso-pharynx along the Eustachian tube. Hence the catarrhal troubles of childhood—enlarged tonsils, adenoids, and the exanthemata—are the most common causes. Seventy-four per cent of Meyer's cases of adenoid growth had ear trouble. In connection with the exanthemata, la grippe, pertussis, diphtheria, pneumonia, syphilis, tuberculosis, meningitis, and disorders of the teeth, it must not be forgotten that earache is among the possibilities and may explain some pain not otherwise accounted for. In the young child the diagnosis is often difficult; but the moaning cry of pain, the putting of the hand to the head, more or less fever, refusal of food, wincing when the ear or the side of the head is touched, convulsions, perhaps unconsciousness, combined with inspection of the drum membrane, will materially aid. The author had success in relieving pain with the following:

Tincturæ opii.....	℥ j.
Atropiæ .....	gr. iv.
Misce.	

Fill the external ear with some of this added to an equal quantity of hot water, the ear stoppered with a small pledget of cotton, and a hot-water bottle applied to the ear. In connection with this, if there is fever, we may give one-eighth to one-half minim of tincture of aconite hourly, with sufficient morphia to quiet the pain, and a saline cathartic. Whenever the drum membrane is bulged decidedly outward from the pressure of accumulating secretion so that perforation threatens, and the fever and pain continue, paracentesis is indicated.

**Favus.**—A. D. Mayer<sup>5</sup> presents a clinical study with special reference to the treatment. The disease is an exceedingly obstinate one to cure. The child should be isolated as far as possible; it should sleep alone and have a separate wash-basin, towels, brush, comb, etc. School attendance is, of course, absolutely forbidden. The hair should be removed with a pair of clippers used exclusively in these cases. After clipping the hair, if the scalp is crusted and dirty, an oil or ointment is prescribed with which to soften the crusts, which are then

removed with tincture of green soap. When the patient returns after a few days with a clean head, a five per cent chrysarobin ointment is ordered and epilation begun. When the reddened patches have been well epilated and the scalp looks fairly clean, "chrysarobin paint" is applied. This is a ten per cent solution in collodion, and is applied to the closely clipped scalp with a stiff-haired varnish brush two or three times a week. When too much irritation results the chrysarobin paint should be discontinued for a few days and ten per cent ammoniate of mercury ointment substituted.

**Hysteria in Children.**—J. G. Biller<sup>6</sup> urges that more attention should be paid to this affection, which occurs in childhood far more often than is usually supposed. The author describes cases of paralytic hysteria in little girls, largely due to dark living rooms, injudicious diet, and the constant hearing about sickness and sick people. Many of the peculiar fears of childhood are often manifestations of hysteria, and the writer believes that very firm treatment, even corporal punishment, should be resorted to, and will often succeed in raising the child's will power to overcome its excessive imagination where milder measures fail. One of the best instructors in self-government is the association of the child with other children. Freedom of movement in physical recreation is helpful, and this largely accounts for the fact that boys are less apt to have hysteria than girls. Neurotic children are, as a rule, poor eaters, and the quality and quantity of their food need careful attention. Competitive examinations at school should not be allowed; many a child is quite capable of steady and good work who breaks down completely when obliged to go through the strain of examinations or of public recitations.

**Infant-feeding.**—Louis Fischer<sup>7</sup> makes a plea for common-sense infant-feeding. An infant from its birth and until it is 2 months old should be nursed or fed once every two hours—no oftener. Some children require an extra feeding about 2 A.M. If artificial feeding is required the following mixture, divided into eight parts, should be used: Cow's milk, 7 ounces; water, 20 ounces; milk sugar, 1 ounce. Between ages of 2 and 4 months the formula should be changed to: cow's milk, 12 ounces; water, 23 ounces; milk sugar,  $1\frac{1}{2}$  ounces. This, divided into seven parts, may be fed every two and a half to three hours. From 4 to 5 months, cow's milk,  $16\frac{2}{3}$  ounces; water,  $16\frac{2}{3}$  ounces; milk sugar,  $1\frac{1}{2}$  ounces, divided into six portions, may be fed every three hours. From 5 to 9 months of age, cow's milk, 25 ounces; water,  $12\frac{1}{2}$  ounces; milk sugar,  $1\frac{2}{3}$  ounces, divided into six portions, may be substituted. Between ages of 9 and 12 months, cow's milk,  $37\frac{1}{2}$  ounces; water,  $12\frac{1}{2}$  ounces; milk sugar,  $1\frac{2}{3}$  ounces, divided into six portions, is to be substituted. After the child has reached 1 year of age we feed once every four hours, using pure milk, no dilution, giving the baby 8 ounces each feeding. When it is not possible to subject each cow to the tuberculin test it is safer to use the milk of several cows. It is necessary to sterilize everything used in connection with



infant-feeding—the cow, the pail, the stable, and by all means the manipulator's hands. The author advises the following method of sterilizing: The bottles are thoroughly washed with some small shot and warm water, rinsed, and turned upside down. Insert a large stopper of absorbent cotton in the neck of the empty bottles, place them in a large frying pan with a small piece of pasteboard between each bottle, and bake them in a hot oven for half an hour. Next dissolve one ounce of milk sugar in twenty ounces of water and add seven ounces of fresh milk. The milk sugar being dissolved and the milk added to the water, pour the mixture into a saucepan and boil it for ten minutes, and then divide it among the eight bottles, care being taken to have the bottles warm so that they will not crack. Replace the cotton stoppers as soon as the milk has been put into the bottles. The bottles are then placed in a cool place and warmed immediately before being used.

**Infantile Paralysis.**—Noble Smith<sup>a</sup> treats of a new method of restoring the absent function of muscles in infantile paralysis. It is well known, he says, that in cases of muscular contraction associated with infant paralysis, division of the tendons of the contracted muscles is usually followed by improvement in the nutrition of the whole foot. When, for instance, the calf muscles are contracted, and their antagonists, the flexors, paralyzed, division of the tendo Achillis not only permits restoration of the foot to a natural position, but it also frequently brings about an increased warmth of the skin and subcutaneous tissue and presumably of the paralyzed muscles also. Very little notice has been taken of this improvement, and when noticed at all the result has generally been attributed to the increased movements of the parts which the release of the contraction has permitted. This explanation does not seem satisfactory to the author, because he has found that the almost immediate effect of tenotomy of the tendo Achillis, with as much reduction of the deformity as possible at the time of operation, has set up a distinct increase in warmth of the part the day after operation. This increase in warmth has continued permanently, or at least, if it has subsided slightly after a few days, yet it has remained distinctly apparent during the period of from two to three weeks or more whilst the foot has been kept absolutely quiescent, and the warmth has continued afterward as a permanent benefit. We know well that additional warmth, whether produced by external heat, friction, liniments, or any other means, will materially help in restoring the functions of paralyzed muscles, if the nerve supply and the muscles are capable of improvement. The result of the increased warmth following tenotomy must act beneficially upon the paralyzed parts. It further seems probable, from the rapid improvement in function of the neighboring muscles which sometimes occurs, that some more direct influence upon the nerves or muscles must take place. After tenotomy of a contracted muscle, in cases in which other muscles have been so far paralyzed that they have been beyond



the possibility of amelioration, there has yet been a permanent improvement as regards warmth and nutrition. In many instances where the limbs have been cold, blue, and with a tendency to ulceration, these symptoms have to a great extent disappeared and almost invariably the skin has lost its blueness. The idea occurred to the author that if tenotomy of a sound muscle was capable of producing so much improvement in nutrition in a neighboring muscle weakened by paralysis, how much more direct an influence would tenotomy of the affected muscle itself have? Acting upon this idea, he operated on two patients, whose histories he records. The result was very satisfactory. In the first case it meant the difference between the child being absolutely cured in a few months and having to wear some mechanical support for the rest of her life. Two years and a half had elapsed since the attack of infantile paralysis, and the reaction of degeneration was present. The author divided the tendo Achillis, and also the tendons of the tibialis anticus, the extensor proprius pollicis, and the extensor longus digitorum. The patient made an excellent recovery, and has since been walking about with a slight temporary support. In the second case, that of a girl of 11 years, the paralysis had occurred at the age of 3 months. The left leg was almost useless. There was two and a half inches shortening of the limb, measuring from the heel to the ground, and the leg below the knee was very cold and blue. In 1896 the writer divided a band of the internal lateral ligament which held the foot in the varus position, and was then able to lessen the amount of the deformity considerably. In 1897 he found the foot and lower half of the leg very cold and the circulation very feeble. Ulcers were almost constantly forming and healing. He operated on the tendo Achillis and also divided the tendons of the paralyzed muscles, the tibialis anticus, extensor proprius pollicis, and the extensor longus digitorum, and broke down some very firm adhesions which prevented the free movement of the tendo Achillis. Three weeks after the operation he found the leg and foot quite warm, the foot in excellent position, and a great improvement in the action of the muscles. In October, 1898, the patient was able to walk with only a slight limp, wears a slight apparatus to take the place of the weak anterior muscles, and requires only one-quarter of an inch extra thickness on the heel and sole of the left boot. The foot and leg are well nourished, and she has never suffered from ulcers or chilblains since the last operation. The author says that it will, of course, require more experience than that derived from the above cases to form a fair estimate of what may be expected from division of the tendons of paralyzed muscles. Muscles which have absolutely degenerated and paralyzed nerves cannot regain their lost functions. But the significance of what is called the "reaction of degeneration" will probably have to be modified, for it would appear that the symptom does not prove that no power of recovery exists.

**Intubation.**—Johann v. Bokay,<sup>9</sup> of Budapest, reports his

experience with O'Dwyer's intubation in the Stefanie-Kinder-hospital. He performed it in 109 cases. Of these 37 made recovery, or 34 per cent. (According to Dillon Brown the American doctors show 27.4 per cent of cures.) Of his tracheotomized croup patients during the past two years, only 16½ per cent were cured. His opinion of intubation is summed up as follows: The O'Dwyer method of treating laryngitis crouposa is an operative procedure that will, in hospital practice, supersede tracheotomy in the majority of cases, as this method is even more advantageous than tracheotomy, because the *continuity* of the air passages is maintained after the operation, and because it can be done without wounding. It is more quickly performed, needs less preparation, and demands fewer assistants.

It cannot be denied that it is more difficult to feed intubated children than those who are tracheotomized. While in some cases deglutition is difficult only in a slight degree, in others feeding the patient presents almost insurmountable difficulties. The limited function of the epiglottis, in particular, is the cause of the food often passing through the lumen of the tube into the trachea and causing a distressing cough, even in the most favorable case. The feeding of intubated children seems most easily accomplished when the patient is placed horizontally in bed. Sometimes extubation will have to be done. The author, in his hospital practice, follows this method: About twenty-four hours after intubation he has the tube removed, even if there is no special reason for doing it, and, if dyspnea again sets in, has intubation done again. The tube is removed, not only that the patient may be fed, but also because experience teaches that the longer the tube lies uninterruptedly in the trachea the more easily laryngeal ulcers result from the pressure. These ulcers are a disadvantage of tracheotomy as well.

**Lymphangiomata, Contribution to the Study of.**—Kunsemüller<sup>10</sup> reviews the pathogenesis of lymphangiomata and reports a case occurring in a girl baby of 8 months, who had had, since birth, a swelling on the right side of the neck, and almond-sized swellings on either side of the frenulum under the tongue. These were removed with the cautery, the size of the external tumor not being influenced thereby. An attack of scarlet fever with catarrhal pneumonia supervened, and was accompanied by a pseudo-membranous exudate over the wounds, swelling of the tongue and of the tumor of the neck. Death resulted from pulmonary edema. The autopsy confirmed the diagnosis of lymphangioma, with cystic tumors beneath the tongue and tiny cysts between the muscle fibres of the tongue substance. Microscopical study showed the connective tissue of the tumor to be in a state of proliferation and new formation, growing into the muscle tissue and causing it to undergo pressure atrophy, thereby making room for the lymph vessels, which dilate and at the same time follow the connective-tissue strands closely. This is a confirmation of Ribbert's view.

**Melanosis Lenticularis Progressiva.**—T. M. Rotch<sup>1</sup> describes two cases of this disease, which is extremely rare, only 75 cases having ever been recorded up to 1897. Its etiology is exceedingly obscure. Nearly all the cases began in the first or second year, and one has been reported as occurring at 5 months. The predominance of the lesions is in the exposed parts of the body, and the lesions consist of freckle-like spots of pigment, followed by atrophic degeneration of the skin and telangiectases. These are the primary lesions, and may be followed later by more serious lesions of the skin, such verrucous growths starting usually in the pigmented spots, and, according to Hyde, of either an epitheliomatous, sarcomatous, or angiomatous character. The lesions may be single or many, may be confined to the skin or develop in the viscera, and usually lead to fatal results in a few or many years. The cases described by the author were two sisters, 7 and 6 years of age. Various forms of treatment had been tried, such as operations by curetting and skin-grafting, toxins of streptococcus erysipellatis and bacillus prodigiosus, applications of copper sulphate, silver nitrate, ichthyol, salicylic acid, and various ointments, the admission of light through panes of glass of various colors, etc., but the condition has not improved.

**Multiple Neuritis in Young Children.**—Anne Sturgis Daniel<sup>12</sup> reports 12 cases of this disease, the causes of which were: arsenic administered for chorea, 1 child; diphtheria, 9 cases; varicella, 1 case; and measles, 1 case. Seven children were cured, five died. In none of the cases were the sphincters involved; in all there were some deviations from the normal mental condition of the child. The first symptom noticed was simply a weakness of the extremities, followed rapidly by inability to stand or walk; the motor paralysis appearing first, followed at once by the sensory paralysis, the recovery being first of the sensory and later of the motor paralysis.

**Myxedema.**—Frederick Bierhoff<sup>12</sup> writes of the recognition and treatment of early myxedema in childhood. That myxedema is not a disease *per se*, he says, but a symptom or collection of symptoms dependent upon the absence or upon a diseased condition of the thyroid gland, is now generally accepted to be a fact, the degree of severity of the symptoms depending upon the extent to which destruction of the secreting portion of the gland in question has taken place. That cretinism, myxedema, and goitre (so-called) are but variations of the one disease, is a view that is gaining adherents as closer study into these conditions reveals the similarity in many of their symptoms, and the excellent results obtained in their treatment by the same therapeutic means. The accepted cause of the conditions is either absence of or disease of the thyroid gland. If the gland is congenitally absent we get the condition known as true cretinism, either congenital or sporadic. When changes in the gland occur early, we have the cretinoid condition, or early myxedema; when these changes occur in persons who have attained full physical growth, we have myxedema. In

relation to the type of early myxedema the writer's attention was first attracted by the occurrence of goitre in cases presenting some of the symptoms of myxedema, but in which growth had not been arrested. In the adult, myxedema is nearly always found accompanied by a reduction in the size of the thyroid gland. In some cases, however, there has been enlargement. Having a change in the structure of the gland, we naturally get a change in the character or quantity of the gland secretion, or both, and it is to this change that the symptoms of those allied conditions are due. Where the goitrous enlargement disappears under the use of thyroid extract or other preparation of this gland, it is very probable that through the entrance of the active principle of the preparation—believed to be an organic iodine compound discovered by Baumann and by him named *thyreoidin*—into the system, the deficit of this compound in the patient's economy is made up, an equilibrium is re-established, and the abnormal activity of the healthy portion of the gland ceasing, this decreases to the original size. In view of these facts the author thinks that we are justified in looking upon a spontaneous enlargement of the thyroid gland occurring in infancy or childhood as being the precursor of more pronounced symptoms of myxedema if allowed to go unheeded. The writer describes 3 cases which he considers to be variations in degree of the one condition, myxedema; for he believes that in those cases of goitre in which thyroid extract exerts a beneficial effect by causing the disappearance of the enlargement, we have to deal with a condition of the gland which may, if unchecked, go on to the development of a more pronounced form of the disease as we see it in the adult, or of the cretinoid state, according to the age of the patient. Furthermore, he holds that a trial of the thyroid extract in cases of goitre without *exophthalmus* in children is fully justified. Bruns, of Tübingen, in speaking of the treatment of 12 cases of goitre, gave as the result, four children (ages 4 to 12) were cured completely. At the end of a fortnight there was a marked decrease observable in the size of the tumor, and in one month thereafter it had entirely disappeared. In one case of goitre accompanied by a cyst in the thyroid, the goitre disappeared, but the cyst remained unaffected by the treatment. He gave one to two drachms of the fresh thyroid gland, enclosed in a wafer or in a sandwich, once a week. His conclusion was that the treatment succeeds best in children.

**Noma.**—Fehde<sup>13</sup> describes a case which ended in recovery. The patient was a little girl of 9 years, who during an attack of scarlatina developed a rapidly spreading gangrenous stomatitis. Antitoxin had been given for immunizing purposes, as there had been diphtheria in the house. No treatment had any effect until potassium iodide was given, when the process rapidly ceased. A rather doubtful history of syphilis was then discovered in the case of the mother and the child herself. Naturally no conclusions can be drawn from a single case.

**Nose-bleed in Children.**—Rosenberg<sup>14</sup> has found that the proportion of cases in which nose-bleed occurs in children is



1:7 compared with those occurring in adults. It may take place at any age, even intrauterine. The cause may be a general one—melena, scurvy, leukemia, or any one of the infectious diseases; or local—adenoids, eczema of the anterior nares, or ulcer of the nasal septum; also trauma of any kind. Boys are rather more often attacked than girls; and the hemorrhage is usually from one side of the nose only, most frequently from a point at the anterior inferior portion of the septum. Tamponing is usually sufficient to check the epistaxis, and its return can be guarded against by cauterizing the bleeding point with chromic acid under anesthesia.

**Esophagus, Impermeable Stricture in a Four-Year-Old Boy; Cure by Retrograde Sounding from a Gastrostomy Wound.**—Roemheld<sup>15</sup> relates the case. The stricture appeared after the child had swallowed a quantity of caustic soda solution. Fluids in small quantities only could be swallowed; probing the esophagus was always badly borne and followed by vomiting for days. Gastrostomy was done, and the passing of the sound from the gastric fistula up to the mouth was gradually accomplished. Eight months after the operation the boy was able to swallow chopped meat, but the gastric wound was not closed until eighteen months after it had been made. The child was finally discharged, cured, two and one-quarter years after admission. It will still be necessary, however, to pass the sound down the esophagus at regular intervals for some time. Thus far there have been five similar cases reported in children. The gastric wound should be made at the cardiac end.

**Pediatrics, the Rise, Progress, and Present Needs of.**—J. P. Crozer Griffith<sup>11</sup> outlines the history of the development of pediatrics as a special study. He states that the first book known to be devoted solely to the subject was written about 260 B.C., and shows how, while an occasional work appeared upon the subject in the course of centuries, it has remained for later days to produce many and valuable works in this department. As to medical journals devoted to diseases of children, Germany leads off with one published in 1787. There are at present four in German, four in French, one in Italian, two in Spanish, and one in Russian. Of journals published in English, not one is owned and edited in England. The United States is well represented in journals treating in part or entirely of the diseases of children. *THE AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN* was first issued in 1868; from the beginning it included articles upon the diseases of children, and later it set aside special pages for this department. *The Archives of Pediatrics* was established in 1884, the *Annals of Gynecology and Pediatrics* in 1890, and *Pediatrics* in 1895. The first hospital for sick children appears to have been a dispensary established by G. Armstrong in 1769. The first in the United States was the Nursery and Child's Hospital. Now there is a great number, to say nothing of children's wards connected with nearly all general hospitals. Of pediatric societies England has none, nor has Germany nor



Austria. The same was true of France until within a few months. In Russia there are two. The American Medical Association established the Pediatric Section in 1880 with Dr. A. Jacobi as its first chairman. In 1887 the Pediatric Section of the Academy of Medicine was started with Dr. J. Lewis Smith as its first chairman. The American Pediatric Society was established in 1888 with Dr. A. Jacobi as its first president. The Pan American Medical Congress, founded in 1893, had a pediatric among its other sections, and of this Dr. John M. Keating was the first chairman. In 64 out of 130 colleges there is a special chair for pediatrics; in 43 the chair is combined with some other department; in 3 colleges there is only a lectureship.

There is need that the recognition of the importance of special teaching in diseases of children to medical students shall become universal. Not many years will pass before the demands of the times and of the undergraduates will force even our most conservative colleges to discard for the new garments of modern progress that shabby, threadbare mantle of antiquity and precedent which they have so long and so closely wrapped about them. In all our schools there is need that much more time be allotted to the study of children's diseases, with a greater supply of clinical material. Pediatrics is special knowledge of disease as it expresses itself in the general system of the child. The general physician need know little of children's diseases. The pediatricist must not only know adult medicine, but special child medicine as well.

**Phthisis Renum.**—Friedjung<sup>2</sup> reports the case of a girl 7 years old whose illness was said to date from an attack of scarlet fever and nephritis at the age of 2. She had Pott's disease and abdominal pain. The urine contained much albumin and pus, but was negative for tubercle bacilli. At the autopsy phthisis renum was found, with tuberculosis of the ureter, mesenterics, and vertebræ, fatty liver, and double lobular pneumonia. It is interesting to note that the early scarlatinal nephritis may have been a predisposing cause of the kidney tuberculosis. The absence of tubercle bacilli from the urine prevented the diagnosis of the condition during life, but only one examination had been made before death came.

**Pneumonia in Children, Treatment of.**—Henry Dwight Chapin<sup>16</sup> believes that undue prominence is often given to the fever as a symptom, and that energetic measures are sometimes needlessly taken to combat it. It must be remembered that children stand a high temperature well. In our management of hyperpyrexia the first point is to avoid any measures that will secondarily have a bad effect. All depressing remedies come under this head, such as the coal-tar derivatives. The only exception made to this rule is the occasional administration of small doses of phenacetin in sthenic cases where there is pain and nervousness. Cardiac stimulants, such as caffeine or camphor, are always added. The application of water is, on the whole, the safest and most satisfactory method of controlling dangerous hyperpyrexia. A thorough and con-

tinuous application of cold water to the head often accomplishes much. Finely cracked ice in bladders may be moulded around the head. If this does not accomplish the desired effect, the next resource is the application of compresses direct to the chest. If the temperature of the child is 105° F. the water may be 95° F., or even warmer at the start. If the temperature does not yield, the temperature of the water can be lowered until it reaches 70° F., or even lower. So long as the feet and hands are kept warm the cold compresses may be kept up, but chilliness of these parts is a contraindication to cold.

L. Emmett Holt<sup>16</sup> states that in considering the treatment of a disease like pneumonia it should be borne in mind at the very outset that most of the cases of primary pneumonia in fairly vigorous children more than 2 years of age recover. The great majority of these cases recover promptly with hygienic treatment only, and very active treatment is unnecessary. Pneumonia kills very young children in three ways—(1) from exhaustion; (2) from complications; (3) from acute toxemia. The most important things to be considered are an abundance of fresh air, intelligent nursing, and careful feeding. No depleting measures are ever admissible, and no unnecessary medication should be permitted. Many annoying symptoms may be relieved by local treatment, such as: the cough by inhalations, pain by counter-irritation, restlessness by the ice cap or sponging. Stimulants should be deferred until demanded by the condition of the pulse. High temperature is much more safely controlled by the use of cold than by drugs. Greater caution is necessary in the use of powerful stimulants than is generally observed. Rest is quite as important as in the other serious diseases.

Henry Koplik<sup>16</sup> emphasizes the importance of ventilation and the constant change of air. The temperature of the sick-room should be kept at about 65° to 70° F. The impregnation of the atmosphere about the patient with thymol vapor, turpentine, or creosote vapor is of very questionable utility.

Walter Lester Carr<sup>16</sup> deprecates the use of the antipyretics of the coal-tar class, and cough mixtures with emetics and nauseating drugs. Young children do not expectorate, and syrups with expectorants only derange the stomach.

In discussing hydrotherapy in the treatment of pneumonia in children, Simon Baruch<sup>16</sup> gives a few words of warning. Spontaneous reaction must always be provided for by friction *during* the bath, so that there should be no need of warmth and friction *after* the bath. Whenever the patient becomes very chilly, with chattering of teeth and cyanosed face, we may conclude that the procedure has been faulty and must be modified. Reaction is also furthered by protection against evaporation, and it may be enhanced by modifying the temperature of the water; not, as is often erroneously done, by elevating it, but by lowering it within reasonable limits and shortening the procedure.

An editorial<sup>17</sup> states that the symposium convened by the chairman of the Pediatric Section has done practitioners great

service in presenting the modern treatment of this disease so clearly that there can be no misconception. There was a consensus of opinion upon the importance of absolute quiet, careful nursing, and abstaining from meddlesome attention which interferes with rest; upon the value of ventilation to afford an ample supply of natural oxygen. There seemed also to be unanimity upon the harmfulness of active medication, especially with opium, nauseants, and antipyretics, also upon the necessity for care in the resort to stimulants. The hot poultice and cough mixture were considered obsolete. The child and not the disease is to be treated. There was a divergence of opinion upon the proper temperature for baths. Various speakers recommended temperatures from 70° to 100°, and one even advised that the sheet be cooled by rubbing ice over it. All the speakers but one advised the bath as a means of reducing temperature. This one claimed that the chief object of the bath is to neutralize the effect of toxemia and stimulate the heart; its lowest temperature should be 80° F. Another speaker warned against all baths.

**Prurigo: its Treatment in Childhood.**—Wolf<sup>2</sup> treated 7 cases (5 boys and 2 girls) with subcutaneous injections of carbolic acid (one per cent) and pilocarpine solution 1:1000. The carbolic controlled the itching, and the pilocarpine caused sweating and helped to combat the leathery condition of the skin. The patients were from 5 to 13 years of age and had had the skin disease since their second year. It took twenty-five days for the treatment to effect a cure, but in every case there was a return of the lesion, sometimes as early as within two weeks. Five other cases were treated with zinc salicylate in powdered form, and the entire skin well bandaged after a thorough bath. The bandages were removed in forty-eight hours, and the skin again cleansed and powdered before applying the new bandage. After three or four renewals the prurigo had disappeared. This method is preferable to the injection treatment as being simpler, entirely painless, and the intervals between the relapses seem to be longer.

**Pylorus, Stenosis of the, So-called Congenital, and its Treatment.**—Pfaundler<sup>18</sup> concludes that the pylorus may be so contracted after death that even in perfectly healthy stomachs the appearance may be that of a round tumor almost obliterating the lumen. Many reported cases come under this category, but there are cases in early infancy which seem to point to a permanent pyloric stenosis. No pathological-anatomical foundation is known for these cases, and it seems very probable that they are functional in character, depending upon a spasm of the pylorus muscles.

**Rheumatism Subsequent to Chorea.**—Frederick E. Batten<sup>6</sup> has made an analysis of cases of chorea discharged from two wards of the hospital for sick children during a period of two and a half years. Of these cases, which number 115, there was no history of previous rheumatism in 78, while in the remaining 37 there was some evidence of the patient having previously suffered from rheumatism. In 1895, a year after the

last patient, and more than three years after the first patient, had left the hospital, postal cards were sent to these 78 cases requesting that they would attend the hospital or that they would reply to certain questions by postal card. Fifty-seven cases responded. There was evidence of rheumatism in 11; in 2 others, although there was no history of rheumatism, nodules were present and well-marked cardiac lesions—13 cases in all, or 11.3 per cent. In July, 1898, cards were sent to 44 out of the 57 cases—*i.e.*, to all those who had not had rheumatism up to July, 1895, and from whom a reply had been previously obtained. Of these 29 cases 18 had had no rheumatism, 10 had had rheumatism, and 1 had died from heart disease. That is to say, there was evidence of rheumatism in 11 of the 29 cases, a further increase of 9.7 per cent, making a total of 20 per cent within six years.

**Scarlet Fever.**—Henry Nelson Potter<sup>9</sup> thinks that too little attention is paid to this disease and too little being done by the profession to stay its ravages. The complications are often very serious and the disease is always dangerous. Treatment must be symptomatic. The body should be sponged with tepid water, simple salines given internally, and the sore throat relieved by sucking ice. If the tonsils are much swollen and covered with secretions, the latter should be removed and disinfectant or astringent solutions applied. Perchloride of iron, chlorinated soda, and dilute hydrochloric acid may be used, and similar remedies should be used to syringe the nose when that is involved. Hot fomentations and linseed poultices may be used when there is much swelling or pain in the neck and about the angles of the jaw. Abscesses should be opened early. If otorrhea is present the meatus may be syringed with warm water, a solution of boric acid (1:20), or dilute peroxide of hydrogen. In severe cases stimulants are called for. Cold affusions to the head and body often give relief when there is high fever. The patient may be quieted by a solution of the five bromides. During convalescence the patient should be guarded from cold, on account of renal complications, and the bowels should be kept active. During desquamation the body should be washed with warm soap and water, and during the day smeared with warm carbolic oil (1:40).

**Scarlatina, Blood Examinations in.**—Van den Berg<sup>2</sup> has examined the blood in 16 cases, making counts of the red and white cells, and testing the hemoglobin and the specific gravity every one to four days for a period of six weeks or more. He has found that there is always a hyperleucocytosis, lasting from twenty to thirty days, and highest on the fourth to the sixth day. There was no definite relation between the temperature and the leucocytosis, nor between the beginning of desquamation and the number of white blood cells. In nurslings afflicted with scarlatina the hyperleucocytosis is absent. The red blood cells are first increased, then decreased in the course of the disease; nephritis is the complication which influences their decrease the most. The hemoglobin showed no definite rise or fall with the temperature; its per cent varied



irregularly. As to specific gravity, it was lowest in the most complicated cases, especially so where nephritis was present. The examination of dried specimens demonstrated the fact that the leucocytosis is due to an increase in the number of polymorphonuclear leucocytes as well as the transitional forms. The eosinophile cells were not increased.

**Struma Congenita; Parents Syphilitic.**—Fürst<sup>19</sup> describes the case of a girl baby born at term with a large tumor on the anterior surface of the neck. The father had become infected five and a half years previously, and the mother had had one premature dead baby. She had been subjected to an inunction cure during this second pregnancy, and had no sign of syphilis. During the first six weeks of life the child's tumor grew smaller spontaneously, so that the skin over it became wrinkled. At 10 months the child was well nourished and absolutely without syphilitic symptoms. The thyroid was still rather larger than normal, but not noticeably so. The mercurial treatment of the mother before the child's birth was undoubtedly responsible for the child's well-being, the struma being the only manifestation of hereditary syphilis.

**Traumatic Cataract.**—Edward S. Peck<sup>20</sup> reports a case in an infant's eye from pressure of the obstetrical forceps. This is the only case of the kind on record. Out of three carefully watched cases of evolution of cataract due to injury, this is the first the author has seen occurring in so young a subject. It is an interesting case, because a trauma severe enough to produce not only cataract but diminished ocular tension, with possibly detachment of the retina and blindness, is followed by cataract absorption, re-attachment of the retina, and exceedingly useful vision, due to the natural processes of repair and not to operation.

**Teratoma Colli, Rare Case of.**—Munker<sup>21</sup> describes a growth removed from a 2-months-old baby, who died four days after the operation. The tumor had grown so rapidly as to interfere with deglutition; it reached upward to the zygoma and down to the third rib. Microscopically embryonic brain tissue, fat, cartilage, striated muscle, glands, and cysts were found, and also the rudiment of an eye. The location of this teratoma (on the right side of the neck) is a rare one, and no similar case is reported in literature.

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ORIGINAL COMMUNICATIONS.

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ACUTE GENERAL PERITONITIS.<sup>1</sup>

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BY

RICHARD DOUGLAS, M.D.,  
Nashville, Tenn.

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As President of this distinguished body I am fully conscious of my exalted position and deeply sensible of the friendly spirit and kindly good will that have induced you to so honor me. This Association, in the ten short years of its history, has become renowned for the excellence of its scientific work, the truthfulness of its records, and the spirit of warm friendship that pervades its membership. And we cannot too cordially express our thanks to Dr. W. E. B. Davis, our permanent secretary, to whose indefatigable efforts the Southern Surgical and Gynecological Association owes its existence and high standing. Nor are we unmindful of our obligations to my distinguished predecessors, who, by their justice, courtesy, and dignity in office and wisdom in council, have guided our deliberations and smoothed our difficulties.

Perhaps a true interpretation of my duties of the hour would

<sup>1</sup> President's address before the Southern Surgical and Gynecological Association, at Memphis, Tenn., December 6-8, 1898.

demand that I address you by recounting our recent deeds of prowess, arranging in chronological order the victories the allied armies, the science and art of surgery, have won in the great battle against disease and death; or in telling of recent discoveries, new devices and modifications of technique—the territorial acquisitions of our profession. Yet, inasmuch as the greatest latitude is granted me, I prefer to restrict my remarks to a very commonplace subject, but one in which both branches of this Association feel a common interest—that of *acute general peritonitis*.

A proper appreciation of the time of the Association will not permit me to discuss this subject in all its phases; for that reason I shall confine myself to an effort to present to you a workable classification. As an introduction to the subject I shall first consider the attempts that have been made to form a classification on a bacteriological basis.

*Bacteriology.*—A bacteriological classification of peritonitis is beset with many difficulties; and while I am free to admit for all practical purposes peritonitis is of bacterial origin, yet there occurs a respectable percentage of cases in which the most rigid examination fails to disclose the presence of micro-organisms. Hartmann and Moreau report in detail such a case recently. Out of 110 cases bacteriologically classified by Flexner there were 12 cases which he was obliged to consign to the idiopathic group. It is true that in all of these patients there existed conditions predisposing to peritonitis, such as cardiac, renal, or hepatic disease. In the intensely septic mycotic form of peritonitis the absence of micro-organisms may be accounted for by the fulminant type of the disease, death occurring from intoxication before the colonies of bacteria are well established. Any effort to individualize the effect of a specific bacterium, to connect its presence with a definite pathological phenomenon and characteristic symptomatology, is as yet futile. That they attack the peritoneum in different ways, that they possess a diversity of virulence and of action, and that peritonitis excited by some varieties is more amenable to treatment than others, is proved, but we cannot by symptoms distinguish a streptococcus infection from one due to colon bacillus. Mikulicz avers that all forms of peritonitis run the same clinical course, regardless of the bacteria that cause it. There is a law laid down by Maloz to the effect that if the peritonitis is of intestinal origin the colon bacillus will show it; if it is of uterine origin—that is, connected with abortions or labor—we will find the strepto-

coccus. It is asserted that the colon bacillus constitutes nine-tenths of the bacteria of the digestive tract—the colon is its natural habitat—but its behavior upon gaining entrance to the peritoneal cavity depends upon many circumstances, and, as Robinson says, this bacillus has many morphological conditions, many forms and stages. The constancy of its presence, however, in peritonitis, since the demonstrations of Welch and others of its capacity of transmigration through the bowel, has led many to attach to it great significance as an etiological factor, but its association with other forms of micro-organisms renders the first proposition of Maloz's law null and void. To say that streptococcus peritonitis is of uterine origin is assuming entirely too much. Would we be willing in any medico-legal case to charge, if a peritoneal fluid revealed streptococcus cultures, that pregnancy had existed? In a recent number of the *Medical Record* William R. Pryor records a case of streptococcus peritonitis. Two specimens were examined. Scrapings from the uterine cavity showed pure growths of streptococcus. In the twelve ounces of pus that escaped through the cul-de-sac incision there was "an abundant growth of bacilli with a small number of colonies of streptococci." When the gauze was first removed from the peritoneal cavity, the culture from a specimen of pus taken then showed only the colon bacillus, no streptococcus. Whose child was this peritonitis—the colon bacillus' or the streptococcus'? The clinical symptoms given do not justify its being assigned exclusively to one or the other; the bacteriological examination certainly revealed the bacillus as the predominant and persistent germ, yet it was reported as a streptococcus peritonitis.

The microscopical findings in just such a case vitiate any such law as Maloz has attempted to establish. If we interpret Maloz's law correctly, the absence of streptococci would eliminate the possibility of peritonitis being of puerperal origin. In rebuttal of this idea I would quote from Winckel. He says: "Krönig examined all parts of the uterus of a woman dead from infection, and found not only the superficial thrombi at the placental site thickly filled with bacteria, but also the serous lining of the peritoneum." This case shows that we can have a peritonitis following abortion without streptococci, and it further shows that the colon bacillus without an intestinal lesion may produce a fatal peritonitis. Yet there is no fact so well established as that the streptococcus is the most frequent exciter and that it is the predominant pus-producing micro-

organism in the lymphatic system—a position strongly maintained by Fränkel. No doubt too much importance has been ascribed to the colon bacillus; and “it is interesting to find that Tavel, who was among the first to emphasize the pathogenic powers of the bacillus coli communis, thinks now the bacillus of minor importance in the etiology of peritonitis” (Curtis). He holds further that the very name of the bacillus coli should be considered merely a collective name of many varieties of bacteria.

The well-known character of the staphylococcus to produce a limited area of infection practically eliminates it as an etiological factor in general peritonitis; its presence in connection with other micro-organisms is frequently demonstrated.

As soon as it was established that puerperal sepsis and its fatal complication, peritonitis, is a preventable disease, it was but natural for the surgeon to seek some loophole through which he might escape censure should he be so unfortunate as to have it occurring in his practice. And we all know how quickly his ingenuity came to the rescue, and deaths were ascribed to autoinfection from ruptured pus tube due to the mechanical violence of labor. How easy it is to get a clinical history upon which gonorrheal infection may be assumed! In a much-quoted and rather vaunted symposium upon peritonitis the author attaches great importance to the gonorrheal origin of peritonitis, and speaks of the rupture of pathogenic cysts of gonorrheal origin during the mechanical violence of labor. How are these ideas sustained by bacteriologists? Bumm and Sängner in their experiments limited the pathogenic property of the gonococcus to the superficial surface of the mucous membrane and of the peritoneum, claiming it never entered the blood or lymph channels, consequently could not cause general sepsis; and, therefore, if general peritonitis occurred, although the existence of gonorrhea was well established, the peritonitis was due to a mixed infection. Contrary to the observation of Bumm and Sängner, Wertheim saw the coccus of Neisser on the surface of the peritoneum, creeping in under the serosa into the deeper tissues and penetrating single muscle bundles. He further demonstrated that a pus tube of gonorrheal origin never contained any other pyogenic bacteria. Menge confirmed this statement, that gonococci rarely form a symbiosis with other bacteria, and demonstrated the presence of this bacterium in the muscular wall of the tube. These experimenters prove that the human peritoneum can be and is liable to

inflammation by the gonococcus (Winckel), a fact that has been thoroughly established by numerous later observers. Sufficient has been said to show that the bacteriological classification of acute peritonitis is as yet premature and unsubstantial for this reason: the observations of the bacteriologist are either experimental, post-operative, or post-mortem, and therefore not applicable for diagnostic purposes, and even in the hands of skilled pathologists the results are contradictory and unreliable.

No better argument against bacteriological classification can be adduced than the words of Simon Flexner, who says: "In order that pathogenic bacteria introduced directly into the peritoneal cavity may cause a peritonitis, general or circumscribed, evanescent or fatal, the normal conditions of the peritoneum must in some way be modified." It must be clear, then, that in the human being, as in experimental animals, some other condition than the mere presence of pathogenic micro-organisms in the abdominal cavity is necessary in order that peritonitis may be produced. Bacteria alone and unaided by physical conditions are comparatively innocuous.

From out of the confusion and uncertainty of a bacteriological study of peritonitis we naturally seek for something more practical, and we accept as a beacon the admission of the bacteriologist that some other factor, mechanical or chemical, must be present in order to render the peritoneum susceptible to the invasion of micro-organisms. Is not the disease supplying these conditions the source, the initial lesion, from whence the bacteria gain their power, and such disease, then, is the true cause? Peritonitis is but an extension of a primary pathology. The only exceptions we must make to this are those few cases in which the cause has not yet been demonstrated, and honesty compels us to assign them to the idiopathic group. A classification, then, based upon the etiology of the disease, appeals to us from its scientific exactness; it admits of clinical adaptation; it forever destroys the false hopes of medication and serum therapy, and spurs the surgeon on to action, very definitely guiding him in his undertaking.

Restricting our consideration entirely to acute general peritonitis, we find that it occurs from traumatic or consecutive causes. And, as these terms are broadly used, perhaps it is well to explain that under the head of traumatic peritonitis are embraced all infective inflammations arising from wounds of the peritoneum, whether accidental or operative, penetrating or non-penetrating. Consecutive, secondary, or symptomatic



peritonitis may be subdivided into two varieties: (1) peritonitis by continuity and (2) perforation peritonitis.

*Traumatic Peritonitis.*—We must embrace under this head all forms of peritonitis due primarily to a trauma. The destruction of tissue, the retention of blood clots and natural secretions, prepare a suitable soil for microbic invasion; and this essential infecting element may be introduced from without, as through penetrating gunshot, stab, or operative wounds, under which circumstances it is usually a poly-infection, the streptococcus predominating. There are also contusions of the abdomen without an external wound, which so injure and lower the resistance of the tissue as to favor the migration of the intestinal micro-organisms and their infection of the general cavity. The most serious types of traumatic peritonitis are those of post-operative origin; and while it is true that modern asepticism has to a great extent eliminated this *bête-noire* of the early laparatomist, yet its occurrence is sufficiently frequent with all of us for me to repeat with emphasis the striking words of Nancrede: "No perfection of aseptic technique will invariably render innocuous faults or misfortunes of operative technique." The needless exposure of the peritoneum to chilled atmosphere; rude manipulations; the destruction of the peritoneal endothelium by vigorous sponging; the failure to barricade with gauze the healthy tissues while dealing with an infected area; neglect to cover all raw surfaces with peritoneum; ligature *en masse* of great chunks of tissue; unnecessary, improper, or insufficient drainage—are some of the errors of technique which we commit in violation of the principles of surgery and common sense in our idolatrous attention to the almighty germ.

*Secondary Peritonitis.*—The supervention of acute general peritonitis as secondary to pre-existing disease processes embraces in its etiology infective inflammations not only of all intraperitoneal viscera, but all organs or tissues contiguous thereto; and it does not appear to me to be too broad if we include within its scope those peritonitides of hematogenic or metastatic origin, for it is well established that the specific germs of diphtheria, scarlet fever, pneumonia, and erysipelas have produced acute general peritonitis.

*Peritonitis by continuity* is the uninterrupted extension of the inflammation from an infected area to the peritoneum, and is accomplished by the invading army of micro-organisms through the lymphatics, blood channels, or by direct penetra-

tion of tissues. The reactionary inflammation which determines the localization or diffusion depends upon the virulence of the bacteria, the resistance of the tissues, and, what is too frequently overlooked, but impressively stated by McBurney, the individual resistance of the patient. Puerperal peritonitis of streptococcus origin conspicuously illustrates inflammation by continuity. It is immaterial whether the infection atrium is the vagina, cervix, or at the placental site. The progress of the infection to its fatal termination, leaving the uterine muscle relaxed, succulent, and paralyzed, the connective tissue soft, edematous, and jelly-like, the lymphatics varicosed, "dilated like the beads of a rosary" (Winckel), their walls thickened, contents often purulent throughout, intramuscular lacunæ of pus, destroyed thrombi, is the wasted territory over which the avenging army of invasion has marched to the peritoneum; or else they may creep through the tissues, leaving no trace of their progress until the field of battle, the peritoneum, is reached. That there are local and constitutional conditions in the puerperal state rendering these patients susceptible to the diffusion of infection, which do not obtain under other circumstances, goes without saying. Yet septic areas in the liver, spleen, pancreas, appendix, kidneys, mesenteric glands, vertebræ, lungs, pleura, abdominal parietes, genito-urinary tract and neoplasms, by extension without perforation may give rise to a general peritonitis. The peculiar pathogenic organism in a peritonitis so excited varies with the character of the initial cause. In the beginning we may have been concerned alone with the streptococcus, the staphylococcus, or the diplococcus, a bacillus typhosus, or the ameba dysenterica. It is the exception for a consecutive or secondary peritonitis to yield a pure culture; sooner or later the colon bacillus enters upon the stage to play its part, whatever that may be. In intestinal obstruction with arrested peristalsis, stagnant circulation, and fermenting contents, we have the well-appointed stage, the *locus minoris resistentiæ*, upon which the bacillus coli plays the star engagement.

*Perforation peritonitis* is the next subdivision of secondary peritonitis. The sudden opening of a focus of suppuration and the discharge of its contents into the peritoneal cavity, whether it be from hepatic abscess, a pus tube, or a mesenteric gland, is a true illustration of perforation peritonitis, yet the inflammation and systemic infection following are not necessarily so conspicuous. The duration of the primary disease, the virulence

of the micro-organism, the preparedness of the peritoneum by fortifications of adhesions, the general condition of the patient, are all circumstances which may modify and circumscribe the peritonitis. It is more common for perforation peritonitis to occur as a result of ulceration of the wall of some of the hollow viscera, as in peptic ulcer, typhoid and dysenteric intestinal ulceration, duodenal and appendicular ulceration. Such a pathological communication established with the peritoneal cavity is vastly more important than any of the other secondary forms; for then escape in activity and virulence large numbers of bacteria accompanied by the contents of the viscus so perforated, which in itself, if rendered sterile, would by its mechanical and chemical action excite an aseptic inflammation.

With perforation, then, we have the three essential prerequisites for an active inflammation—a foreign substance, chemical irritation (hence lowered resistance), and bacteria. It is not surprising, then, that the majority of cases of acute general peritonitis fall under the etiological class of perforation peritonitis. The disease process leading to perforation may have been exceedingly slow, so latent in its form and symptoms as to be wholly unsuspected, as in duodenal or gastric perforations; or it may occur as the legitimate pathology of a specific disease, as in typhoid ulceration. However that may be, the knowledge that perforation peritonitis is a symptomatic condition should direct us at once in our clinical investigation; and we know that certain areas of the peritoneum, certain districts of the abdominal cavity—the appendicular, duodenal, and stomach regions, in the order named—are particularly liable to invasion by perforation, just as we know that the pelvis is more frequently the site of localized peritonitis by continuity. The location of the perforation has other than a diagnostic bearing. Unless the process has been gradual and Nature has had time to establish adhesions, the higher in the peritoneal cavity the perforation the greater the tendency to diffusion and general infection. For this reason a duodenal or gall-bladder perforation is relatively more serious than a ruptured Fallopian tube. I do not wish to convey the idea, however, which seems to possess more than one writer on this subject, that infection does not spread from the pelvis because it is up-hill, and that a gastric ulcer is generally surrounded by adhesions, and the peritoneum escapes general infection because the bacteria cannot climb over the transverse colon.

We all know that general peritonitis and profound septic

intoxication may follow perforation of the appendix when that organ lies deep in the cavity of the pelvis. The intraperitoneal currents quickly carry the toxins to the great absorptive area, the under-surface of the diaphragm.

The conclusions that we may draw from this etiological study of peritonitis may be thus summarized: Traumatic peritonitis, especially the post-operative variety, is essentially a grave condition, not only because there is immediate or primary inoculation of the peritoneum, but the conditions are all favorable for germ culture and dissemination. Peritonitis by continuity may become general and prove rapidly fatal, but this is not the rule except in puerperal cases. Contrary to the expressed opinion of more than one writer, there is nothing peculiar about the peritoneum, or the cecum or appendix, or the true pelvis which accounts for the more frequent localization of inflammation in these regions than in other areas of the abdomen. The method of invasion, the activity of the process, and the resistance of the patient alone determine the local or general type of peritonitis. The force of gravity is a minor element in limiting peritonitis to the pelvis. Visceral perforation, whether traumatic or pathologic, is an ideal condition for germ culture and the elaboration of toxins. Their rapid absorption and general diffusion throughout the peritoneum sufficiently explain the grave state into which the patient is precipitated. It may be asserted that the clinical course and pathological expression depend largely upon the nature of the exciting cause, the character of the pre-existing disease or injury, and the mode of invasion.

Without attempting to formulate any definite pathological classification of general peritonitis and to adapt each to its special cause, I prefer to direct my efforts to simplifying and dispelling the confusion that exists. I accept, with slight reservation, the now almost universally conceded idea that acute general peritonitis is and must be septic—that is, of bacterial origin. But I maintain that we as surgeons do not understand each other, nor have all of us a clear conception of what is meant by septic peritonitis. It has been a race for life between the practical surgeon and the bacteriologist as to who should claim the honor of naming the pathological phenomena in this great serous bursa. I maintain that the surgeon is alone competent to define, classify, and prognosticate the protean types of this disease. The confusion that exists is attributable to his courteous effort to adapt his clinical observa-



tions to the findings of the bacteriologist. That men are honest, painstaking, and accurate goes without saying, yet how can we reconcile the report of McCosh's last series of eight cases of general septic peritonitis and six operative recoveries with the experience of Senn "of many cases of diffuse septic peritonitis without a single successful result"? The answer certainly is not in the superior skill or special technique of the operator, but it is to be found in an analytical study of McCosh's cases: six of them were purulent peritonitis and two serous peritonitis—not the class of cases referred to by Senn at all. Again, that beautiful English writer and eminent surgeon, Lockwood, defines septic peritonitis as a bacterial invasion with varied clinical reflexions, unmindful of the pressing necessity of specifically defining septic peritonitis. But his colleague, Frederick Treves, is more practical and draws a sharp distinction between the varieties of peritonitis, and is unmistakably clear in his definition of diffuse septic peritonitis, emphasizing its virulent feature, septicemia, and the comparatively insignificant peritoneal pathology. The German surgeons are more in accord with each other. Enthusiastic bacteriologists, they are none the less expert pathologists and skilled surgeons, and they have clearly differentiated the deadly diffuse septic peritonitis from all forms bearing effusion. Their conception of the condition is clearly stated by Tietze, who defines diffuse septic peritonitis to be "that form of peritonitis in which there is little or no exudate, severe symptoms of intoxication, and terminating rapidly fatally." That this definition most appropriately describes many cases of post-operative and perforation peritonitis every Fellow of this Society will sadly admit, and that there is a wide difference, as yet an unbridged chasm, separating these foudroyant types of infection from the milder cases. Some four years ago I submitted at our Charleston meeting a report of eight cases of general peritonitis subjected to operation, with four recoveries and four deaths. I dealt with them all as cases of general septic peritonitis from a misconception of the term. Two of them only properly belonged to this class, and they terminated fatally. The others were cases of general purulent peritonitis, with two deaths and four recoveries. I am very well pleased with my percentage of recoveries yet, but disgusted with my classification. I did not discriminate between diffuse septic peritonitis, dying in twelve hours with profound toxemia and dry peritoneum after perforation of an appendix, and one of perforation with enormous



purulent effusion but mild symptoms of sepsis. This error of mine is the common one with the profession, and it is the outcome of an attempt to classify peritonitis by the character of the exudate. The terms serous, hemorrhagic, fibrinous, suppurative, and putrid peritonitis convey but a superficial observation that the merest tyro might make, and in no sense designate the origin, define the general condition of the patient, nor indicate the prognosis of the case. The various effusions are but physical expressions of the intensity of the infective process upon the one hand and the degree of phagocytosis on the other. Or, expressed otherwise, a fibrinous peritonitis indicates a mild infection or a strong effort on the part of the peritoneum to limit or localize a severe inflammatory condition, while a purulent accumulation denotes a virulent infection or else weaker resistance, breaking down Nature's attempt at fibrinous barriers. Our surgical memoranda abound with cases bombastically described as "general septic peritonitis," "belly full of pus," "intestines swimming in pus," "quarts of pus gushing forth," "pus from diaphragm to pelvis," "operation and recovery"—conveying the idea that the more pus the greater the skill of the surgeon.

If we are correct in assuming that acute general peritonitis has as one of the potent factors in its production bacteria and their products, it is unfortunate to confound our nomenclature with the term *septic peritonitis*. It is true that if it could be sufficiently explained that the word septic referred to the general condition of the patient, perhaps it would not be so delusive; but even then it would be unfortunate, for it would be only a relative term. All of us have seen cases, exceptional it is true, that have gone on for some hours, perhaps days, bearing a large purulent effusion, with pulse, temperature, and respiration within normal bounds. Is it not more descriptive and less confusing, when we wish to convey the idea of intense systemic infection, to accept the term intestino-peritoneal septicemia, first used, I believe, by Dr. Malcome, of Edinburgh, and use this term synonymously with that of diffuse or general septic peritonitis? The macroscopical appearance of the peritoneum in this condition is not indicative of the intense systemic infection. Death occurs in these cases from nerve shock and the rapid absorption of intestinal toxins escaping through the perforation before pronounced peritoneal inflammation can occur. A few ounces or less of indifferent fluid is all that we may see in some instances. If the patient survives long enough

the general peritoneum may appear scarlet red and dry (Robinson).

Intestino-peritoneal septicemia is, then, acute general septic peritonitis; it is the acute diffuse septic peritonitis of some authors. The word diffuse is misleading; Greig Smith defines "diffusive peritonitis" to be "from extravasation of aseptic fluids," but, as I understand, it implies a widespread, boundless dissemination of an infection. A serous, hemorrhagic, or purulent effusion is general when it is diffuse; therefore when we say general peritonitis we have no use for the additional adjective *diffuse*.

The etiological classification of peritonitis places it as subsidiary to the primary lesion which produces it, and its practical import is its local origin. A painstaking investigation into the clinical history will usually determine the organ or structure primarily involved. The symptoms and physical signs, if the case is seen sufficiently early, will still further aid us in incriminating the part under suspicion. This valuable diagnostic evidence does not conform to any stereotyped expression; the symptomatology of peritonitis is as varied as its causes. We cannot by the presence of any striking symptom or group of symptoms arrive at a decision in a doubtful case, but from the whole picture we form our conclusions.

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## PELVIC NEURITIS, OR INFLAMMATION OF THE PUDIC NERVE, IN WOMEN.

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BY

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INASMUCH as the majority of medical men, having rare occasion to refer to them, are not well up in the anatomy of the pelvic nerves, I will give such description of them as may be needful for the understanding of this article.

Excepting the obturator and the lumbo-sacral, the nerves found in the true pelvis are derived from the sacral nerves and from the sympathetic. The sacral nerves are separated into anterior and posterior. The posterior are distributed outside of the true pelvis. The anterior sacral nerves go to form the sacral plexus, excepting one branch from the fourth, which,

“communicating with the sympathetic, it forms the hypogastric plexus.” It communicates also with the fifth sacral, and it furnishes visceral branches which, in the female, ascend upon the vagina and bladder. The fifth anterior sacral also does not assist in the formation of the sacral plexus, as a rule. The sacral plexus of nerves is derived from the lumbo-sacral nerve, the first, second, third, and from one branch of the fourth anterior sacral nerves. All of the anterior sacral receive twigs from the sympathetic, according to Harrison Allen. The pudic nerve, according to the same authority, arises from the second, third, fourth, and at times from the fifth anterior sacral nerves, which form a plexiform arrangement with branches from the sympathetic. The trunk of the pudic passes along the outer wall of the ischio-rectal fossa, out of the pelvis through the greater notch, into it again through the lesser notch, along the inner surfaces of the tuber and ramus of the ischium, to be lost in forming a nervous sheath for the clitoris. In its passage it gives branches, the inferior hemorrhoidal to the sphincter and rectum, the anterior and posterior superficial and the anastomotic to the small sciatic.

Neurologists speak of neuritis, neuralgia, and neurosis. Of neuritis O'Connor says: “As the terminology of the word indicates, this means inflammation of a nerve.” Of neuralgia he says: “The word neuralgia means nerve pain, but it is applied only to pain existing in a nerve without anatomical change in the latter.” Gowers says that neuritis is indicated by tenderness and pain in the trunk and area of distribution of a nerve. The tenderness appears to be the essential symptom, and its persistency is its great characteristic. I recognize two forms: one where tenderness alone exists—this I have called the dormant form; in the other tenderness and spontaneous pain coexist, and this I have styled the active form. This classification possesses some merit on clinical grounds. I have not thus far met with a case where, the tenderness once being developed in a nerve trunk, it has ever entirely disappeared afterward. I have repeatedly examined cases in which the patient had no suspicion that the nerve trunk was tender until I had palpated it. The pain, whether spontaneous or excited by pressure, is rather apt to radiate; these excursions I have not studied, but I have observed that they go into the limbs, to the feet at times, more often only to the thighs or knees, into the buttocks, hips, iliac, inguinal, and hypogastric regions, the whole length of the spine, and even to the head. In a

general way, when a woman complains of persistent pelvic pain she has neuritis, no matter what else she may have. The great physical characteristic is the tenderness which exists in the soft parts covering the inner surfaces of the walls of the pelvis. By careful palpation it will usually be found that this tenderness reaches its greatest development in the trunk of the pudic nerve.

I have thus far seen no book, manual, or article which directs that the condition of the pelvic walls should be investigated, with one exception. I am not able to make the reference exact, but I think it is in Veit.<sup>1</sup> He directs, if my memory serves me well, that the sciatic ligaments should be palpated, inasmuch as they are prone to be affected by rheumatic inflammation.

It is because gynecologists have not examined the pelvic walls from within in making their digital examinations that they have failed for so long a time to observe the existence of this affection. To ascertain the condition of the pudic nerves as to tenderness, it is needful that the palpation should be made after a peculiar fashion. It is my custom, after introducing my finger into the vagina, to seek for the evidences of inflammation of the pudic nerves before I palpate the cervix. For the left side of the pelvis the left index finger should be used, for the right side the right index. I first seek for the tuber of the ischium. Resting my thumb on this as a guide to the topography, I sweep the point of the index finger backward, making pressures, so to speak, at short intervals over the great sciatic notch, backward on the latero-posterior pelvic wall, deep into the sacral fossa by the side of the rectum, on the latero-anterior surface of the sacrum as far as I can reach toward the upper border of the bone, endeavoring to pass over the area of the sacral plexus and the trunk of the pudic nerve; then bringing the index finger forward, I press on the inner surfaces of the tuber and ramus of the ischium until I get up pretty close to the clitoris. This sweep of the finger comprises the extent of the pudic nerve trunk. The tenderness may extend wide of this into the area of distribution, but the greatest tenderness will be found by pressure on the trunk itself. Then using the right index finger, I go through the same procedure on the right side.

Pudic nerve inflammation may affect the part of the nerve behind the ischiatic tuber or the part in front, posterior or ante-

<sup>1</sup> Gynäkologische Diagnostik.

rior. It may exist on one side or on both; it may coincide with inflammation of all the nerves of the sacral plexus, on one side or both, with inflammation of the posterior sacral nerves, with similar disease of the nerves of the lumbar region; or it may be simply part of a more or less general peripheral neuritis.

According to my experience, pudic neuritis is the most common disease of the pelvic organs of the adult woman. In a series of 50 cases taken consecutively from my record, in which I made pelvic examinations, I found inflammation of the pudic nerve to exist in 24, nearly 50 per cent! And my subsequent studies do not lead me to suppose that this result over-indicates the frequency of the disease. I am not aware that the disease possesses any literature excepting such notices as I have published.

Under the name of sciatica, inflammation of the sacral plexus has been extensively exploited.

Puerperal neuritis has received a good deal of attention in print, but the form to which I feel tempted to apply the term "gynecological" has been practically ignored. My attention was first called to the disease by Prof. J. T. O'Connor, of this city, who stated that some ten or twelve years ago he had met with a small group of three or four cases of a rather severe type. He then said he believed that "there were a lot of them." When asked how the affection was to be recognized, he replied that the only thing really distinctive was the tenderness of the nerve trunks. The cases noted by me have in the main been of a mild type, but the importance of recognizing these is immense.

It is the pain-producing link in the chain of morbid lesions which are held to result from scars, cicatrices, bands, and adhesions.

It is this neuritis which in many cases furnishes the pain and sensibility in vaginismus and dyspareunia.

It is the pain-inducing condition which makes some cases of deviation and dislocation of the uterus productive of acute suffering.

It is the affection which produces the severe pain of cancer.

It is the cause of the severe and persistent "neuralgias," so-called, which now and then appear late in cases of pelvic peritonitis.

It is the usual cause of the pelvic pain and distress which go so far toward incapacitating women, who, if they are prone to become hysterical and are subjected to improper influences, are apt to degenerate into bed-ridden invalids.



It is the malady the existence of which explains the fact that so many women suffering from pelvic disease fail to get well, no matter how long they may be treated.

It is this lesion which is the cause of the incapacity to endure physical exertion and effort, shown so commonly by women who have borne children or had miscarriages and abortions. If they go beyond a certain point, which is soon arrived at, they are laid up by pelvic pain and distress due to an attack of neuritis. This incapacity often endures long after the menopause.

It is the malady which usually produces the persistent pelvic and abdominal pain for which so many oöphorectomies, salpingectomies, and, in these latter days, hysterectomies have been done and are still being done, as young operators and the surgeons in small cities and towns are still doing these mutilating operations for the relief of pain, the source of which they are ignorant of and the nature of which they cannot explain.

With reference to the etiology there is not much to be said. Without a predisposition probably no case of neuritis would persist. In case of injury or abuse the nerve tissue would, like other tissues, become inflamed and, like other tissues, recover. In case the tissues in which the nerve fibres are embedded should fail to recover, it is not difficult to suppose that the nerve tissues would fare in the same way; but when we find the other tissues getting well and the nerve tissue failing to do so, it is fair to call in a predisposition to account for this failure. Given such predisposition, it would appear that the abuses sufficient to excite and maintain neuritis must be rather numerous and effective during and after childbirth.

As far as time is concerned, it has appeared to me that the neuritides due to childbirth can be placed in two groups: first, those due to such traumatism and infection as is incidental to the process of delivery; second, those which appear later, and I have associated these with the scars and other damages which are characteristic of laceration of the cervix. That there is a late-developing pudic nerve neuritis following childbirth I feel sure, and I have never seen it unassociated with damage, greater or lesser, of the cervix. In a general way it is my impression that the rôle of the poisons in causing pelvic neuritis has been in the way of developing the predisposition—abuse, mechanical-traumatic, being rubably recognizable as the exciting.

Pretty much all of my cases have originated during the period of menstrual life, a few only after it seemingly; pretty much all have either had children, miscarried, or aborted, or, having deviation or dislocation of the uterus, had been subjected to much rough treatment. In some the neuritis appeared to be the sequence of some other tissue inflammation, as peritonitis, for instance. It has appeared to me that neuritis could and did originate in another way. It is the function of the sensory nerve fibre to inform the brain that the tissues to which it is distributed are being abused, and pain is the message. The temporary and intermittent conveyance of this message may, for the purpose of illustration, be styled physiological, but the persistent and constant carriage of this message becomes pathological, and in course of time amounts to enough of an abuse in itself to excite inflammatory action in the carrier, the nerve trunk in the predisposed.

I have said that the affection is without literature. I do not mean to convey the impression that it has escaped the notice of physicians. One female physician, who came to me for examination of her own case, said she was aware that the pelvic peritonitis from which she had suffered for many months was getting better, but coincidentally a neuritis, situated within the pelvis, was getting correspondingly worse. Again I have read at times, in printed reports of cases in journals, that "neuritis" or "a high grade of neuritis" existed.

In publishing this article I am prepared for the expression of doubt and incredulity, perhaps, by the majority of those who read it. In response I have only to ask whether they have ever sought for the evidences of the affection and failed to find them. If they have so failed, then I am in the position of the traditional small boy who, when informed that the condition of his small clothes did not meet with approval, simply subsided. To those who have not sought for the disease somewhat after the manner and fashion described by me, I would urge that they should abstain from the formation of an opinion until after having examined a series of cases sufficiently numerous to warrant them in assuming that they are entitled to speak with authority.

My purpose in publishing this article is to call attention to the existence of the disease, to indicate approximately its frequency, and to suggest the propriety of its being studied by a multiplicity of workers. I am well aware that I have only "tapped" the subject, as it were. I would be glad to hear

from those who, having large numbers of patients at their disposal, will be able to report the results of the investigation of a great many cases in a comparatively short period of time. That the disease exists as I have described it, that its frequency is great, that its importance is even greater than I have stated, I am confident. I simply submit the contents of this paper as a foundation upon which other students may rear a superstructure of information.

117 WEST FORTY-FOURTH STREET.

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DYSTOCIA DUE TO "ACCIDENTAL HEMORRHAGE,"

WITH CLINICAL NOTES OF FOUR CASES.<sup>1</sup>

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BY

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HEMORRHAGE accompanying labor is always an emergency. So long ago as 1776 Rigby emphasized this fact in his paper, "An Essay on the Uterine Hemorrhage." The two names he then gave to it are still retained in our modern obstetric nomenclature—apt, though hardly scientific enough for to-day—"unavoidable hemorrhage" and "accidental hemorrhage." Unavoidable, because "it is clear that the child cannot be born without separation of the placenta," when previa; accidental, because "in this case" (when the normally situated placenta is prematurely detached) "separation of the placenta is no necessary part of the process of delivery, but is an unfortunate accident."

The thesis of Moreau, 1888, gives the following history of the literature, up to that year, of "accidental hemorrhage." Its most characteristic symptom, the internal hemorrhage, was first mentioned by Guillemeau, 1621, and next by Portal. Mauriceau, 1738, and later Baudelocque the younger, reported several cases, and still later Mme. Boivin, Lachapelle, and Velpeau denied the possibility of premature separation of the normal placenta. Rigby published his paper on uterine hemorrhage, mentioned above, in 1776. He made the first systematic examination into the causes of the accident, and even to-day this paper is authoritative. Early in this century Braxton

<sup>1</sup> Read before the Lister Club, Portland, November, 1898.

Hicks, among others, wrote upon the subject and collected reports of 23 cases. Goodell, of Philadelphia, in 1869, prepared a most complete monograph upon the accident, which was published in THE AMERICAN JOURNAL OF OBSTETRICS for September, 1869. The article was based upon the study of 106 cases, the total number he could collect up to that time, and is much the best paper upon the subject yet found in any language. Pilat wrote about this accident in 1874 and Brunton in 1875. Cazny, 1891, was one of the first to claim a relation of cause and effect between albuminuria and placental hemorrhages, and about that year Mme. Henry and Pilardy also reported cases and advocated the same theory. Twelve cases of fetal death caused by albuminuria were reported by Oui, 1893, in one of which there was in all probability a premature separation of the normal placenta. Meyer, with 5 cases of his own of “accidental hemorrhage,” could find, in 1894, only 138 cases reported up to that year. Weiss (extract from *Archiv. für Gynäk.*) reports 8 cases with full clinical data—a very valuable paper for study of treatment. (This bibliography is condensed from THE AMERICAN JOURNAL OF OBSTETRICS, October, 1894.)

The best magazine article (English) is by Goodell and has been the principal source of both theoretical and practical reference for other writers. One of the best text-book articles upon the subject is in Reynolds’ “Practical Midwifery,” ed. 1897.

Statistics of the frequency of “accidental hemorrhage” are unreliable, because it is certain that many cases have not been published. Personally I have met with the accident four times with only 1,000 private cases of delivery, which I think must be an unusual experience.

The explanation of the accident is not yet clear. The various writers and reporters upon the subject show little originality in their ideas of causation, most being content to quote from the paper of Goodell. Analysis of these different opinions groups the causes into remote or extrauterine, and direct or intrauterine. Some writers ascribe all cases to mechanical violence—falls, blows, etc.; others to the emotions—fright, sudden anger, etc. Inflammations of the uterus or of the appendages, placentitis, disorders of the cord or membranes, syphilis, and lately albuminuria, each have advocates as direct causes. These supposed causes are probably only suppositions and



simply coincidences. The albuminuria theory seems to have a better basis for acceptance, though certain facts in the phenomena of puerperal eclampsia still argue against it, as will be noticed later.

The successive phases of the accident within the uterus seem to be these: First, a rupture of the vessels of the decidua vera at the placental site or of the vessels of the placenta itself, with, second, a separation of the placenta by this effused blood, at first in part and later even to the whole surface—a vicious circle of cause and effect; and, third, sometimes “a slight external leakage of blood and serum, though in a quantity insufficient to account for the symptoms.” That these tearings—apart of the two deciduæ result from either slight contractions of the general uterine musculature or of distinct groups of muscles at the uterine site is evident, but what is the stimulus which immediately induces them is still the question. Placental pathology is yet most unsettled.

Ten cases of accidental hemorrhage are reported in abstract in *THE AMERICAN JOURNAL OF OBSTETRICS*, October, 1894, five of which were accompanied with acute nephritis. One of these abstracts ends thus: “These observations confirm the fact that a nephritis may cause changes in the decidua—namely, an exudative inflammation or degeneration—which make the attachment of the placenta less firm and result in accidental hemorrhage. But they also call attention to an exceedingly grave condition, myometritis, which is hardly mentioned in obstetrical text books.” Yet, anent this idea that nephritis causes “accidental hemorrhage,” Herman says: “There is no doubt that Bright’s disease leads to hemorrhage into the placenta. From this fact it is reasonable to expect that accidental hemorrhage would be common in Bright’s disease, but it has not yet been demonstrated that it is so” (“Difficult Labor,” q. v.).

Finally, after all has been said, the clinical fact happens, without satisfactory explanation.

The symptoms vary with the amount of detachment and hemorrhage, from that condition of the patient in which the obstetrician feels only intuitively that something is going wrong, but cannot prove it, up to a fatal collapse. If the placental separation or the symptomatic external flow is slight, the accident is not usually recognized until the uterus is emptied. Then the presence of unusual clots or excessive flooding might



suggest it and examination of the placenta confirm it. These are the cases of the “mild” variety of Goodell. Sometimes, though fortunately not often, the initial symptom is sudden and unexplainable flooding. Now the story will be that after a trifling injury, or not infrequently while sleeping quietly during the night, there comes on severe abdominal pain and a feeling as if the womb would burst. The belly and uterus grow bigger and bigger and increasingly tender. There may also be flooding, but there is general agreement that this is out of proportion to the severity of the suffering. In this “grave” variety the experienced eye sees at a glance unmistakable tokens of progressive concealed hemorrhage. The fainting, pallor of lips and face, the extreme anxiety, all mean only one thing, all establish it. Further corroborative signs of the accident are, usually, irregular contour of the uterus, less or greater according to the quantity of the effusion, and the ordinary fetal prominences and motions are absent, as well as the heart sounds. Vaginal examination shows that the cervix is opened a little, through which the membranes are bulging, and that the placenta is not presenting. Labor is early, with premature separation, but is not progressive, the muscular action being paralyzed by over-distension. The patient complains not so much of pains as *pain*. This picture is drawn from nature, as seen in my fourth case, reported later.

“Accidental hemorrhage” is, of course, an antepartum hemorrhage, the separation of the placenta beginning either before the first stage or else coming on early in it. Continuous external flooding at this time, with collapse, establishes the diagnosis. More definitely, if a pregnant woman, after the seventh month and up to term, begins flowing, and this flowing is continuous, not intermittent, and is also increasing, with the presence also of pains, the source of the bleeding is utero-placental. If the placenta cannot be felt in the cervix, then the case is almost certainly one of those rare emergencies, premature separation of the normally-placed placenta, so-called “accidental hemorrhage.” Such a condition warrants a resort to active measures for immediate delivery, and this practice is authorized by the best obstetricians. In all these emergencies of childbirth it is better to drive than be driven, to operate too early rather than too late. None will more certainly blame a fatal procrastination than those who are always ready to raise the cry of “meddlesome midwifery.” And if ever counsel is needed in obstetrics, now is surely the time.

As further points of differential diagnosis, placenta previa is felt in the cervix; and, strictly speaking, the bleeding in placenta previa is intermittent and greatest during the contraction, while with "accidental hemorrhage" the flow is continuous without regard to the contractions, though this is rather a *book* symptom than an actual fact. Uterine sensitiveness and tension is absent in placenta previa.

Acute hydramnios has no hemorrhage, though abdominal pain, unusual distension of the uterus and belly, and embarrassed breathing are common to both.

Rupture of the uterus follows rupture of the membranes, portions of the child pass into the abdominal cavity, and the uterine tear can often be perceived.

Case reports are so often worthless for purposes of study that I hesitate to offer the following. But this accident is so unusual that any clinical details of it ought to be of some advantage in helping to formulate definite plans for its management. So I venture to offer the following clinical history of my four cases. The first three are extracts from a paper read before the Maine State Medical Society in 1888, which paper was published in *THE AMERICAN JOURNAL OF OBSTETRICS*, October, 1888. The fourth case occurred quite lately and is now given for the first time.

CASE I.—May 16, 1880. Irish, 35, Xpara, strong and healthy; labor in progress through the day. Attended by a stupid compatriot. Was called because of the delay in delivery. Patient was found with extreme pallor and exhaustion, head low in pelvis, in third position, and a little blood was running from the uterus. Pains had been feeble for several hours, but while examining a sudden contraction expelled a large, stillborn child. Placenta came away at once spontaneously with a quantity of large, firm coagula. Firm manual compression caused good contractions, and the patient slowly rallied. It was found that there was an extensive rupture of the vessels of the cord at their juncture with the placenta, which break must have taken place *in utero*, since no traction was made by myself upon the cord. No cause for the flooding found except the break in the cord mentioned.

The noticeable points in the history are antepartum hemorrhage from rupture of cord vessels, inertia, and shock from loss of blood; patient multipara and child stillborn.

CASE II.—December 27, 1886. American, 25, IIIpara,

healthy, previous labors normal. Flooding began at 10 A.M. while doing housework; three attacks before I saw her at noon. Had fallen down a flight of stairs several days before without apparent serious injury, gestation otherwise normal; last menstruation April 6, and connection after April 15. At present in eighth month and first week of pregnancy. Apart from the flowing, the only complaint made was of flatulent colic. Put in bed at 2 P.M. with slight bleeding present. No wound of the canal found, cervix an inch long and open to the finger, head presenting. Child active and its heart sounds distinct, placental souffle at left fundus.

Induction of labor decided upon for the following reasons: the bleeding was intrauterine and not due to placenta previa, hence most probably from premature detachment of the placenta; the quantity of blood lost negatived reliance upon ergot and rest in bed; the pelvis would offer no obstruction to delivery, judging from past labors; though the child was at present viable, its death was imminent unless the drain could be stopped; the mother's condition was good, and her consent readily given to operation.

Dilatation commenced with the finger and continued at intervals of three hours, when the internal os opened and head had descended to the outlet. Slight contractions were felt by the operator, though not by the patient. When woman was upon the left side there was a little continuous flow, which stopped if she turned upon the back. After four hours the external os admitted two fingers; the head was fully engaged in superior strait; labor was in active progress. The membranes were then broken, but no water escaped until after the head was lifted, when a large quantity flowed out. No hemorrhage after rupture of the membranes, and pains stopped also. Patient slept two hours, all the time lying on the side. To arouse the uterus, quinine (grains x.) was given, but without much effect. General condition good; occasionally the outlet was stretched by the finger, for at no time did it seem to open naturally.

Finally, after eight hours, pains became energetic, even to extreme agony. Ether to full extent was given, cervix pulled over the caput, and child born with five or six pains. Cord around the neck loosely. Third stage perfectly normal, placenta expelled spontaneously. Child hardly full grown, skin wrinkled, weight eight pounds, cried lustily, and is now (1898) strong and well. The placenta was large; fully one-quarter

had been torn off from its site antepartum, and upon this side was a thick, firm clot. Flooding threatened after delivery of the secundines, but was prevented by steady compression. Lying-in was perfectly normal.

I have attended this patient several times before and since this case, and all these other births have been normal.

Interesting points in this case are: A fall before the flooding, flatulent colic coincident, the effect of puncturing the sac upon the hemorrhage, the ease with which labor was induced—the method being that advocated before the Maine State Medical Association in 1883 by our venerable associate, Dr. Burbank—the stubborn inflexibility of the uterine outlet, which persisted to the last. The case is apparently one of typical “accidental hemorrhage.”

CASE III.—January 17, 1888. Irish, 30, IVpara, strong and well; gestation natural; in active housework up to labor. Pains began in morning. Sac ruptured at 7 P.M., just as I was summoned; waters abundant; pelvis and canal ample; uterine outlet wide open, cephalic presentation; pains feeble; no fetal or placental pulsations. Uterus appeared to be in two parts on left side, where a deep groove could be seen and felt in it. Soon after the sac broke blood began to trickle out of the womb, and the flow increased to be quite a stream. No apparent reason for this hemorrhage, nor had the cervix been injured in the examination. Changing from left side to back lessened the flow but increased the pains; the patient, however, refused to remain in the dorsal posture because of the increased discomfort. The condition then was as follows: a roomy pelvis and canal in a multipara, os fully dilated, pains ineffective, head engaged, probably a dead child, and an increasing uterine hemorrhage. Simpson's forceps were immediately applied at the superior strait and head drawn in the cavity, contractions were increased, and the head delivered unaided, with two or three pains. Child dead, weight ten pounds; cord twined closely about the neck, where it had made a deep crease. Third stage normal, placenta expelled spontaneously; a thick, dark clot covered its outer quadrant, and a handful of soft coagula were removed with it. The lying-in undisturbed. Patient said that, of the four pregnancies, the two first children were stillborn.

Here are the following interesting points: Antepartum hemorrhage and feeble contractions in second stage without evident reason, irregularity in uterine contour, coincidence be-



tween hemorrhage and position of patient (as in second case), and strangulation of child by torsion of cord about its neck.

CASE IV.—Mrs. B., 30 (?), Irish-American, spare figure, healthy. She has four other children, two of whom I delivered and two were born before I could reach her. Notes of these cases are as follows: *First* child, July 2, 1887; normal gestation; first position cephalic; feeble pains in second stage; delivery with short forceps and hard work; male, weight ten pounds; three sutures for torn perineum; lying-in normal, five hours labor. *Second* child, April 28, 1890; normal gestation; first position cephalic; inertia in second stage, and short forceps; male, weight nine pounds; five hours labor, lying-in normal. *Third* child, February 3, 1893; precipitate labor, born before my arrival; male, weight nine pounds; lying-in normal. *Fourth* child, June 14, 1894; precipitate labor, born before my arrival; male, weight nine pounds; one hour labor, lying-in normal. *Fifth* child, June 28, 1898; gestation up to the eighth month normal, so far as known. At estimated eighth month and one week I found an attempt at labor. May 29, the cervix was open about one inch, and feeble contractions occurred at long intervals through the day and night. Fetal movements active, and auscultation showed first cephalic presentation. Uterine action was checked by a hypodermatic of morphia in the morning of the 30th, but began again to a like degree in the evening, accompanied with several moderate chills. That night, in my absence, another physician was called, who found nothing to explain the chills, and the spurious labor stopped voluntarily the next day.

At 10 o'clock A.M. June 28 I was summoned and reached her at 10:30. She was said to have been in labor through the preceding night, and was supposed by the attendants to be ready for delivery. She was undressed in bed and in the following condition: extremely pale, pulse thready and rapid, profuse cold sweat, complains of severe pain in the belly and that she could lie only upon the right side. I turned her upon the back to examine the abdomen, but she immediately collapsed to such a degree that I feared she would die at once. Hasty external examination of the uterus showed it to be very hard and tender, and no fetal sounds could be heard. She was quickly returned to the right side and a hypodermatic of strychnia,  $\frac{1}{30}$  grain, given. The cervix was open to about the size of a silver dollar, the membranes bulging, and the supposed head presenting. A trickle of bright blood followed the examination,



and this soon increased to a steady flow. I diagnosed premature separation of the normally situated placenta and requested counsel. Dr. Marshall, of this city, kindly answered and gave me valuable help. Operation was delayed an hour and a quarter in waiting for a clergyman. At 1 o'clock P.M. ether was given to insensibility, the cervix was manually dilated, Simpson's forceps applied to the brim, and a nine-pound male delivered. Time in delivery, about ten minutes. Following extraction Dr. Marshall compressed the uterus and squeezed out of it, at one gush, an enormous mass of clots, the placenta which was entirely free, and a quantity of blood which we both estimated to be fully one gallon. The child was dead, pallid from hemorrhage, and one loose coil of the cord was around the neck. The uterus was immediately irrigated with very hot water and soon contracted firmly. During the next two hours constant uterine compression was kept up; two enemas, of two quarts each, of hot normal salt solution were given and retained, and frequent hypodermatics of strychnia. After an hour the uterus began to relax and flowing began again. A hypodermatic of ergotol was followed by severe uterine pain and typical ergotic contraction, which morphia did not relieve. Death took place just two hours post partum.

The uterine surface of the placenta was covered with small, firm coagula, and its decidua was partially dissected off by extravasated blood. In other respects the placenta was normal.

It was agreed that death was immediately due to heart clot, and consciousness was present up to the last few minutes of life.

There was no edema of the feet, nor had there ever been any other symptomatic indications of defective kidneys.

To recapitulate these symptoms would be but to repeat the classical signs of this accident. The report has been given thus freely that the picture may be a clear one of one of the most distressing fatalities of labor which it has been my fortune to witness.

In these four cases the symptoms are typical of both "mild" and "grave" forms of so-called "accidental hemorrhage," and are uniform with like clinical reports and statements in text books.

1. The patients were all multiparæ, which experience agrees with others. In 64 cases noted only 8 were primiparæ.

2. Each had inertia uteri in varying degree. (Case 1, nearly

arrest of contractions for hours; Case 2, no contractions for two hours after rupture of membranes; Case 3, inertia in second stage necessitating forceps; Case 4, feeble, if any, contractions from the first.)

3. Two had the irregular outline of the uterus that indicates localized effusion and disturbed muscular co-ordination.

4. All of the four had the peculiar uterine sensitiveness and tension mentioned by Goodell and others.

5. The effect upon the flowing produced by rupture of the sac was marked in the only case where it was possible to observe it. The firmer parts of the child are plainly a better tampon against the leaky vessels than the amniotic fluid. Goodell says: “In the franker forms of accidental hemorrhage” (when the blood escapes at the os), “by an early evacuation of the waters, the hemorrhagic area is rapidly diminished.”

6. Notice the large fetal mortality. The one child born living was saved only by direct interference with the helplessness of Nature. Desmond is quoted as saying: “All cases proved fatal except those in which uterine action was present and the contents speedily evacuated, either by art or Nature, while there is a trifling ratio in favor of those where the hemorrhage occurred externally.” “Of 106 cases of all grades of severity, 54 mothers died; of 107 children, 101 died. Death terminated almost every case in which suffering from pain was either absent or not a prominent symptom” (Goodell).

7. While there may not be any other relation than coincidence between antepartum hemorrhage and the posture of the woman in labor, yet in two of my cases this association was an undoubted fact. When upon the back there was little flowing but greater pains; on the contrary, if upon the side, pains were less but flowing prominent.

8. The flooding was continuous, not in spurts like that of placenta previa, and thereby diagnostic (?) of this special condition.

9. One other coincidence in these 4 cases is noticeable—the coiling of the funis. In 136 cases at term the cord was 21 times either naturally short (that is, short enough to materially delay birth), or artificially so by being twined around some part of the child. Though of common occurrence and generally of little importance, this brevity of the cord may handicap the child, imperil the placenta, and even be a direct source of death. The danger is that the descent of the child

may make traction enough upon the cord to break its vessels, either in continuity or at their divergence upon the placenta (see my own case, and also case of Hamil in Philadelphia Obstetrical Society, reported April 5, 1888). The placenta also may be pulled away from its attachment (which appears to be the most usual effect of such traction), when even a relatively small quantity of blood effused between the two deciduæ is fully able to induce contractions that will be fatal to the continuance of gestation. In such cases the result is disastrous, "the mortality far exceeding placenta previa" (Goodell).

In these four cases the one who received the fall had the cord loosely about the neck, in another it was around the neck and tight enough to kill by strangling, the third had broken cord vessels from probable intrauterine traction, and the fourth had the cord around the neck, though loosely.

I regret that in none of these cases was there a urinalysis, but in only two patients could there have been any chance for doing so, and nothing in their appearance suggested it. It is an oversight that will not occur again, since there is authority for associating albuminuria and hemorrhagic placentitis.

The prognosis is self-evident. Taught by the lessons of the past, there is hardly any condition of labor more dangerous than this too early separation of the normally situated placenta. If the bleeding shows itself externally and the attendant is awake to the situation, accouchement forcé may save the mother. In either "mild" or "grave" form of the accident the child will almost invariably be lost.

The rules for treatment of this emergency have been changed latterly from those of former days. Except in merely trifling cases, temporizing and tampons are to court disaster. Under antisepsis and anesthesia forcible dilatation is justifiable, and then either forceps or version will give the child at least a chance. "In this, as in all other forms of uterine hemorrhage, the one hope of closing the open mouths of the vessels lies in an immediate emptying of the uterus in order to afford an opportunity for complete contraction and retraction to occur" (Reynolds, q. v.).

Taking a lesson from the abdominal surgeons, it might be well, if there is time, to precede delivery by use of the normal salt solution, and after delivery it certainly should be a routine practice. The enema, rather than the venous or subcutaneous method, seems to practically be as useful as the others, and in the emergencies of the situation is easier and safer. Accord

ing to the degree of the anemia, so is the usefulness of the salt solution.

To what extent strychnia as a cardiac stimulant can be given in these cases is a question for argument. Perhaps the flagging heart can be whipped to a standstill, but heroic doses are justifiable.

The fourth case illustrates one of the sequelæ of these accidents which has been noticed also by others—the secondary hemorrhage. It is agreed that after the actual delivery there is a special liability of postpartum flooding, due to the feebleness of the uterine muscles from their former over-distension. A point for your discussion is, whether this woman should have had an intrauterine tamponade, and, generally, the practical value of this procedure.

99 FREE STREET.

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## REMARKS UPON THE USE OF MAMMARY GLAND AND PAROTID GLAND DESICCATIONS IN GYNECOLOGY.<sup>1</sup>

BY

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LAST May I presented to this Section a report of my experience with mammary gland and parotid gland preparations in the treatment of fibroid tumors of the uterus and certain forms of ovarian disease,<sup>2</sup> and at the twenty-third annual meeting of the American Gynecological Society, held at Boston, May 26, 1898, I had the honor, by invitation, of presenting the subject to that body.<sup>3</sup> My remarks before the American Gynecological Society were confined to the use of mammary gland desiccations in fibroid tumors of the uterus, and I reported four cases in whom I had obtained gratifying results. These cases

<sup>1</sup> Read before the Section on Gynecology of the College of Physicians of Philadelphia, December 18, 1898.

<sup>2</sup> "The Use of Mammary Gland in the Treatment of Fibroids of the Uterus, and of Parotid Gland for Ovarian Disease." By John B. Shober, A.M., M.D., Philadelphia. THE AMERICAN JOURNAL OF OBSTETRICS, vol. xxxviii., No. 3, 1898.

<sup>3</sup> "The Physiologic and Therapeutic Action of Extract of Mammary Gland." The Medical News, August 27, 1898.



had been under treatment from two to six months, and in all of them the general health had steadily improved, the menorrhagia and metrorrhagia had ceased, and the tumors had all appreciably decreased in size.

Unfortunately I was misquoted in several of the leading journals, during the summer, in regard to the physiologic action of mammary gland. The subject of discussion before the American Gynecological Society at the time I made my remarks was the use of *thyroid extract* in the treatment of uterine fibroids, and I opened by giving my reasons for not employing this agent in these cases. I condemned it because I had found it to be a powerful and dangerous depressant to the heart, producing tachycardia and extreme nervous depression, and that it cannot be used with safety for any extended period of time in doses larger than the equivalent of from three to six grains daily of the desiccated powder. These observations in regard to the action of the thyroid gland were quoted as having been made with reference to the mammary gland. I desire at this time, therefore, to state that the mammary gland has never, in my experience, given rise to any of these unpleasant and dangerous constitutional disturbances. On the contrary, the patients for whom I have prescribed it have improved in general health, and the agent seems to act as a tonic rather than a depressant to the system. With regard to the use of parotid gland for certain forms of ovarian disease, I can only say that my original favorable impressions have not been destroyed by subsequent experience.

My object in renewing the subject at this time is twofold: first, I wish to define the class of cases in which I have found a use for these preparations, in order that they may be employed intelligently and with a reasonable expectation of obtaining favorable results; and, second, in order to request any who may see fit to use them to send me reports of their experience.

*The Mammary Gland.*—Following the lead of Dr. Robert Bell, of Glasgow, in a paper already quoted by me in my first communication, I began the employment of this agent over a year ago in cases of fibroid tumors of the uterus. Since then I have operated upon only one case of uterine fibroid, and then only on account of painful pressure symptoms and at the urgent request of her physician. The constant hemorrhage was so profuse that it was thought unwise to take any chances. A number of other cases, detailed reports of which will be



reported later, ranging from large multinodular to small subserous nodules no larger than a cherry, have been treated by the employment of mammary gland desiccations. The results have been most satisfactory, in that the menstrual periods have become regular and less profuse, attended with but little if any pain, and the tumors are diminishing in size; and, to say the least, the patients have been placed in far better condition for operation, and the operation itself rendered less difficult. The effect of the drug in checking menorrhagia and metrorrhagia led me to use it in cases unattended by fibroids, as well as in one case of subinvolution after labor, with very gratifying results.

*Method of Employment.*—A five-grain tablet is composed of two grains of the desiccated powder from the mammary gland of the sheep and three grains of excipient. Each grain of the desiccated powder is equal to ten grains of the fresh gland. Each tablet, therefore, represents twenty grains of the fresh gland. The dose is from three to six tablets daily. The full dose or larger doses produce cramp-like, contracting pains in the tumor. These pains are not intestinal pains. Positive results may be expected in from six to eight weeks. No other treatment is employed, except measures to keep the bowels regular and occasionally tonic doses of strychnia or nux vomica.

*The Parotid Gland.*—This gland has been used only in cases of ovaritis, enlarged, congested, exquisitely tender ovaries—cases of so-called ovarian neuralgia and ovarian dysmenorrhea. Positive results cannot be expected when there is associated disease of the Fallopian tubes, such as hydrosalpinx, pyosalpinx, and pelvic inflammatory disease. When employed in selected cases results have been obtained far more prompt and lasting than I have ever observed by any other form of treatment.

*Method of Employment.*—The tablets are made in the same way and of the same strength as are the mammary tablets, and are prescribed in the same doses. The only untoward result which I have observed was one case in which an urticaria developed. This, however, promptly yielded to treatment after stopping the parotid tablet. This symptom was undoubtedly due to some decomposition in the preparation employed. Special tablets of these desiccations are prepared by the Armour Company, of Chicago, and the H. K. Mulford Company, of Philadelphia.

HYDROSALPINX COMPLICATED BY INCOMPLETE ABORTION  
AND SIMULATING ECTOPIC GESTATION.<sup>1</sup>

BY

ABRAM BROTHERS, B.S., M.D.,

Adjunct Professor of Gynecology at the Post-Graduate School; Visiting Gynecologist to  
Beth Israel Hospital, etc.

FOR the facts in the following history I am indebted to my house surgeon at the Beth Israel Hospital, Dr. Kennedy. Mrs. R., æt. 38, admitted to hospital October 7, 1898; discharged October 28, 1898. This patient had always been very healthy. She began to menstruate at the age of 15 and was always regular. Her oldest child is about 16 years of age and healthy. Her youngest child is 5 years old and also healthy. She aborted once about fifteen years ago. She last menstruated about six weeks ago. This menstruation, like the others, was normal in every respect. The present trouble began on the 3d of October, though for a week previously she had complained of chills and fever. On the above-mentioned date she was suddenly seized with severe pains, lancinating in character, in the lower abdominal region. These pains continued at intervals for the next three days. On Thursday, the 6th, three days after the onset of the pains, she was seized with severe metrorrhagia accompanied by fainting spells, which could not be controlled. She then sought medical advice. From the history she gave and an examination per vaginam a diagnosis of extrauterine pregnancy was made, with the result that she was sent to the hospital on the evening of the 7th.

Her temperature on admission was 99.8° F. The pulse was small but regular and about 80 to the minute. She had been constipated for thirty-six hours. I saw her immediately on her entrance to the hospital. Examination per vaginam showed the uterus to be enlarged, cervix contracted and slightly lacerated. A slightly fluctuating tumor was found behind the uterus, on the right side. From my examination and the history obtained I also concluded that she had an ectopic gestation. I concluded to operate. She was immediately prepared for operation. At 9:45 P.M. she was on the table. The Tren-

<sup>1</sup> Patent and specimen presented before a meeting of the Eastern Medical Society, November 11, 1898.

delenburg posture was chosen. Ether was administered as an anesthetic. An incision was made in the median line between the umbilicus and pubes, the recti muscles separated, and the peritoneal cavity opened up. On the right side, behind the broad ligament, an elongated tumor, about one and a half inches broad and three inches in length, perfectly free from adhesions, was found. This proved to be the right Fallopian tube, which was filled with clear liquid. The tumor was conical, fluctuating, and larger at the uterine than at the fimbriated extremity. The ovary was found to be perfectly normal. The mass was then removed without rupture and the pedicle ligated with braided silk. From the time the knife was first applied to the skin until the tumor was removed exactly ten minutes elapsed. The peritoneum was sewed with fine catgut, the fascia with stronger catgut, and the abdominal wound was firmly closed with silkworm gut. A dry dressing of iodoform gauze and powder was applied. The patient was now put in the lithotomy position and dilatation and curettage performed. Placental and membranous débris was removed. The uterus, after irrigation, was packed with iodoform gauze; then the vagina was packed and the patient put to bed. Throughout the operation the patient took the anesthetic well and the pulse was very good. Nearly an hour was occupied from the time etherization was begun until the patient was again in bed. One hour after the operation her temperature was 99° F., pulse 86. At 12 o'clock P.M. her pulse was 86 and fairly strong and her temperature 100.2° F. She was now catheterized and six ounces of urine drawn off. A thirtieth grain of strychnine and a small amount of brandy were given every three hours. The next morning her temperature was 100.2° F. She was regularly catheterized at stated intervals. A tenth of a grain of calomel was now administered every fifteen minutes until twenty doses were taken. The uterine gauze was removed on the second day following the operation and was found only slightly blood-stained and odorless. The patient slept at intervals during the night and day. She got up a slight diarrhea following the administration of Epsom salts given after the calomel, which had to be controlled by bismuth and opium. Her temperature after this was always less than 100° F. and her pulse about 96. Her bowels became regular and pulse and temperature normal about the fourth day. She was kept on liquid diet up to the twelfth day. On the eleventh day I removed the sutures. I found that, besides being absolutely

painless, the wound had healed by first intention. On the fourteenth day solid food was given, and the patient was allowed to sit up on the eighteenth day. After this her bowels remained regular, pulse and temperature normal, and the patient felt perfectly well on the day of her discharge, the twenty-first after operation.

*Remarks.*—The case suggests a few reflections. It is common enough to overlook an ectopic gestation and treat the case as one of ordinary intrauterine pregnancy. This happens constantly to the best practitioners. It is, however, quite rare to feel justified in excluding an intrauterine pregnancy in favor of an ectopic gestation. This is exactly what happened in the present case.

Irrespective of the fact that the patient was sent into the hospital with the diagnosis of ectopic gestation, in the absence of a previous acquaintance with the case, I was forced to the same conclusion for the following reasons :

1. The patient skipped her period by two weeks and considered herself pregnant. In a woman who had given birth to a number of children this fact was of great importance.
2. She was seized with sudden violent cramps, associated with uterine hemorrhages and attacks of syncope during a period of three days. No ovum was recognized—nothing but blood and clots. These irregular hemorrhages accompanied by violent cramps and syncope are present in both intra- and extrauterine pregnancy, but are at times relied on as sufficient in themselves to justify the diagnosis of extrauterine pregnancy. To clinch the latter diagnosis the presence of free blood in the abdominal cavity or
3. A tumor in the pelvis ought to be made out. This was clearly present in this woman's case, and justified
4. The opening of the abdomen for confirming the diagnosis and removing the tumor. The fact that the nature of the tumor was not recognized in advance does not cast any reflection upon the procedure, for the operation was clearly justifiable even for the removal of the hydrosalpinx. But by proceeding as we did we could next safely resort to
5. The curettage and cleansing of the interior of the uterus. Had this operation preceded the laparotomy we certainly ran a big risk of rupturing an ectopic sac, if such existed, and perhaps losing our case from internal hemorrhage on the table. Even in the presence of a tumor, such as a hydrosalpinx or a pyosalpinx, common sense dictates that it is much safer to dispose



of the growth before it has been subjected to the risk of rupture in the course of a curettage.

For these reasons I feel that I should act in a similar emergency in exactly a similar manner; and, as the present case proves, "the end justifies the means."

112 EAST SIXTY-FIRST STREET.

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A VESICO-VAGINAL OPENING AS A MEANS OF BLADDER DRAINAGE IN EXTENSIVE PLASTIC WORK ON THE URETHRA.<sup>1</sup>

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BY

H. S. CROSSEN, M.D.,  
St. Louis, Mo.

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THERE is a certain class of cases which at first glance appear easily curable by a simple plastic operation, but in which the results are often very discouraging. I refer to cases of incontinence of urine following deep ulceration about the urethra. Last year I assisted a friend, a member of this Society, in an operation of this kind. The surfaces were carefully denuded and accurately approximated by suture, and a small catheter fastened in the urethra. The greater part of the surfaces healed, but still there was no immediate benefit, though some months later, when the scar tissue contracted, the incontinence ceased, but returned later. The irritation of the catheter or of urine around the catheter had evidently interfered with the healing of the deep part of the wound at the neck of the bladder. The remembrance of the experience just mentioned gave me added interest in the following case which came under my care: The patient, Ella F., colored, age 35 years, came to me in December, 1897, suffering with incontinence of urine. Her general health was fair. She had had five children. No trouble during or following labor. In 1891 she contracted syphilis, and the following year had severe ulceration of the urethra and vestibule. This ulceration evidently extended into the bladder, for she passed blood with every act of urination, and the tenesmus was so severe that the straining therefrom caused a bowel movement with almost every evacuation of the bladder. When this subsided the patient was left with a constant dribbling of urine. A short time afterward she underwent some kind of an operation for the trouble, but without permanent benefit. Examination revealed that there was practically

<sup>1</sup> Read before the St. Louis Obstetrical and Gynecological Society, November 17, 1898.



no urethra. The lower part of the vestibule, including the lower wall of the urethra, had, by ulceration, been separated from the upper and was simply a short flap. At the neck of the bladder there was a small opening, through which the urine constantly escaped. There was scar tissue in every direction, and a few areas of superficial ulceration. By catheterization I determined that there was no retention, and hence that the escape of urine was not due to retention with overflow. The patient had also a retroverted adherent uterus and a laceration of the perineum. She was given potassium iodide, and, after treating the ulcerations about two weeks, with the result that all were healed except one small area, an operation for the restoration of the urethra and relief of the incontinence was performed. I brought the flap up against the tissues beneath the pubic arch, denuded the surfaces, leaving a narrow strip in the centre above and below for the urethra, and united them by suture. A retention catheter was placed in the bladder. Part of the wound healed and part did not. The portion at the neck of the bladder healed externally, but apparently did not heal internally, for there was no permanent relief from the incontinence. When the scar tissue from the operation wound began to contract there was a very slight control over the urine, but this soon disappeared and the incontinence was as bad as ever. About a month after this the patient developed syphilitic ulcers on the lower extremities and arthritis of one knee, which troubled her for a number of weeks. In one way and another she was sick for several months, and it was June before she was again in condition for operation. The displaced uterus appeared to push the bladder downward, and this, in conjunction with the laceration of the perineum, caused a descent of the anterior vaginal wall and the base of the bladder. I thought best to do away with this dragging on the neck of the bladder, by bringing the uterus up into position and repairing the perineum, before making any further direct attempt at relieving the incontinence. Accordingly I opened the abdomen, broke up the adhesions, attached the fundus uteri to the abdominal wall, and then repaired the perineum. I intended, when she had recovered from this operation, to make another attempt to restore the urethra, and especially to unite the deep tissues near the neck of the bladder sufficiently to get some sphincteric action. To accomplish this two things would be necessary:

1. The scar tissue must be cleared away sufficiently to allow approximation of healthy tissues containing sphincter fibres.

2. The line of union, especially the internal part, must be protected from irritation during the healing process.

To do the first would be comparatively easy, but the second gave me a great deal of trouble. I searched through various gynecological and genito-urinary works, hoping to get some help from the recorded work of others, but found very little that would help me on this particular point. Believing that the failure in the first attempt was due to the irritation by the urine and catheter, preventing union deep in the urethra, I determined to do away with both by draining the bladder through an opening in its base. Accordingly, when the patient was anesthetized for operation July 23, I made a vesico-vaginal opening at a convenient point in the base of the bladder, fastened in a medium-sized, soft-rubber catheter, and then proceeded, as before, to unite the surfaces on each side of what was formerly the urethra. I was particularly careful to denude deeply and remove the scar tissue from the angles at the neck of the bladder, and also to make the strip left for the urethra *very narrow*. By attaching a piece of rubber tubing to the catheter, fastened in the vesico-vaginal opening, the urine was conveyed into a bottle beside the bed. The ninth day the sutures were removed and the wounds had healed. The fifteenth day the tube was removed from the opening in the bladder and the patient was catheterized by way of the urethra with a very small catheter. The following day she could retain her urine two or three hours and could pass it voluntarily through the urethra. There was no leakage through the vesico-vaginal opening. Twenty-two days after the operation the patient left the hospital feeling well. She could retain her urine three to four hours and could pass it without difficulty. The vesico-vaginal opening had closed. The patient's previous condition, with the constant flow of urine, was miserable indeed, and she was exceedingly grateful for the relief secured.

For a number of years it has been customary in cases of severe chronic cystitis to drain the bladder by making a vesico-vaginal fistula. I understand that Trendelenburg made suprapubic drainage in a case of vesico-vaginal fistula sutured from below.

Two years ago Weir,<sup>1</sup> in writing upon rupture of the urethra

<sup>1</sup> Medical Record, May 9, 1896.

in the male, reported two cases in which he had sutured the urethra and then drained the bladder through a suprapubic opening. But in regard to making a vesico-vaginal opening for the purpose of protecting the operation wounds during the healing process, I have been able to find no article or report of a case in which it has been employed or even suggested. However, I have not taken the time to make an exhaustive search of the literature on the subject, and possibly the procedure has been previously employed. If so, I shall be under obligations to any one who will direct me to a report of the case or cases. I think this method of protecting the wound from the irritation of urine and keeping the bladder at rest will be found advantageous in all cases of extensive plastic work on the urethra, especially when involving the region of the sphincter. It does not materially increase the danger nor add to the difficulties of the operation; it keeps the wound free from urine during and after the operation; it keeps the approximated surfaces at rest, and it does not constitute a serious item in the convalescence. If the opening does not close spontaneously within a short time after its usefulness is ended, it can be closed by a simple operation. In fact, the tendency to spontaneous closure is so strong that a good-sized catheter must be fastened in the opening and kept there as long as drainage is required.

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### THREE OPERATIONS UPON DIABETIC PATIENTS.<sup>1</sup>

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BY

CHARLES P. NOBLE, M.D.,

Surgeon-in-Chief to Kensington Hospital for Women,  
Philadelphia.

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THE question of operation upon patients suffering from diabetes is one which must be settled by the surgeon not infrequently. The accepted belief of the profession is that such patients should not be operated upon, and the ground upon which this advice is given is that the wounds in diabetic patients are apt to suppurate or to become gangrenous. When one attempts to find the basis for this opinion by consulting the authorities, it is found that the statement is given as a

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, December 15, 1898.

dictum, without presenting much evidence in support of it. It is probable that it is based upon the experience of surgeons in dealing with gangrene of the extremities in diabetic patients. Having had occasion to operate three times upon diabetics, I thought this experience might be of interest to the Section.

The first patient was a multipara about 50 years of age, suffering from cancer of the breast. The operation was done before the present method of dealing with cancer of the breast, but was a radical operation for that period—that is, the breast was removed and the axillary glands dissected out. The wound was dressed, with drainage of the axilla. The axilla suppurated, but this was due, in my opinion, to the drainage rather than to the presence of diabetes. The patient made a good recovery. This operation was done under a misapprehension. The urine from two patients was confused, and operation upon the supposed diabetic was postponed until the error was discovered. The patient subsequently died from cancer.

The second patient was also a multipara, about 50 years of age, upon whom the operation of removal of the appendages had been performed by another surgeon some years previously. She came under my care for the cure of a ventral hernia. Upon the discovery of glycosuria the patient was put upon appropriate diet and full doses of codeia and strychnia. Under this treatment the amount of sugar very greatly diminished. The hernia was operated on and the patient made a good recovery. Three years later her physician told me that she had continued well, and that under the continuation of the treatment instituted the sugar had entirely disappeared from the urine.

The third patient was a multipara, age 50 years, who was suffering from complete procidentia. The uterus was very much enlarged, and she had in addition a small tumor of the ovary. She reported that her physician had found sugar in the urine some years previously. In the meantime her general health had remained good and she suffered only from the procidentia, which made her life miserable. Careful examination showed that she was passing rather less than the normal amount of urine, which had a specific gravity of 1026 and contained two and a half per cent of sugar. Under the influence of restricted diet, codeia, and strychnia the sugar fell to one and three-quarters per cent. In view of my experience with the preceding cases, taking into consideration the good

general health and nutrition of the patient, the absence of the ordinary symptoms of diabetes, such as extreme thirst and inordinate appetite, I advised operation, but thought it wise to vary the procedure usually adopted. Instead of amputating the cervix, performing anterior colporrhaphy, perineorrhaphy, and hysterorrhaphy, I decided to do a vaginal hysterectomy, bringing the stumps into the vagina, so that if sloughing did take place the wounds would all be outside of the peritoneal cavity. This was done, and in addition an anterior colporrhaphy, leaving the perineal operation for a second sitting. The patient did well for four days, when the percentage of sugar and the amount of urine largely increased; symptoms of coma supervened, became rapidly worse, and the patient died of diabetic coma on the sixth day.

I have reported these cases to elicit the experience of the Section in operations upon diabetic patients and as a contribution to the subject.

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## CORRESPONDENCE.

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### PARTIAL ABSENCE OF UTERUS AND VAGINA.

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TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

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SIR:—The following case came under my observation recently and is of sufficient interest to report: Mrs. E., æt. 18, married six months, came to me complaining that she had never menstruated, though she began to develop about the age of 14. With the exception of an anemic appearance, the patient seemed to be very well and robust. A short course of treatment for her anemia convinced me I had something more than anemia, and the patient was advised that an examination was necessary to clear up certain features of her case. In two weeks she again presented herself for further care at my office. An examination showed a well-developed female pelvis; vulva, etc., normal. A digital examination showed a small canal that ended abruptly like a cone, the whole length being an inch and a half. The entrance to this vagina consisted of folds of adipose tissue covered with mucous membrane. Separating the vulva and everting the canal, which was easily done, I found nothing except at the apex a slightly eroded surface.



There were no rugæ common to vaginal tissue, but a perfectly smooth surface. As the patient was somewhat nervous about a further examination, a subsequent appointment was made with a view to clear the case up under an anesthetic. This was attended to a few days later in company with a couple of fellow-practitioners, with the result that no uterus, ovaries, or tubes could be made out through the rectum, the only convenient method of examination in this case. At about the site of the uterus a cord-like mass of tissue seemed to exist, otherwise the pelvis was clear, as near as we were able to determine. The following appearance and symptoms were noticed: Breasts greatly hypertrophied. There were no constant symptoms of vicarious menstruation other than a backache, quite severe, occurring about once a month for the past four years. She has once vomited about a pint of blood, at other times has spit blood in small quantities. Her right leg swells a great deal, and she has aggravated headaches that occur at any time. The sexual function is normal and active. Urethra normal, though she cannot retain her urine at times. The last disturbing period she had there was a tinge of blood with the urine that escaped. She is nervous and irritable, and complains of drowsiness a great deal, saying that she can go to sleep at almost any hour of the day, though she sleeps well at night. When approached with the suggestion of an operation she willingly acquiesced, saying she would submit to anything to be relieved of her unpleasant symptoms. The distress she suffers is hardly sufficient to justify an operation with a view to relieve her and bring on the menopause, though certainly there is little or no consolation in an effort to treat the case with medicine.

E. S. WRIGHT, M.D.

SALT LAKE CITY, December 15, 1898.

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#### NORMAL SALT SOLUTION.

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TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

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DEAR SIR:—I have just read in the January number of your JOURNAL a communication from Dr. Henry K. Leake, who criticises the stand I took in the October JOURNAL in defence of the term “normal” salt solution as applied to the physiological

solution. It is quite evident that one's conclusion would differ according as to whether or not he views this subject from the physiological or the volumetric standpoint. Dr. Leake contends that in the use of the word "normal" we should be governed by the definition given in the United States Dispensatory in connection with volumetric solutions; while I claim that our use of the word "normal" in this instance is derived from the close resemblance between the 0.6 per cent salt solution and the salts in solution in the *normal* human blood. By this latter statement I mean that, according to Landois and Sterling in their work on "Human Physiology" (fourth edition), in each thousand parts of the human blood there are six of inorganic salts, and this proportion is the one maintained in making the "normal" or physiological salt solution.

It is certainly quite a coincidence that a volumetric solution of sodium chloride should be practically ten times the strength of the salts in the blood. But let me say just here that I think Dr. Leake makes a mistake in calling a volumetric solution of sodium chloride a "salt solution." As a salt is the compound formed by the union of an acid and a base, when speaking, in a volumetric sense, of a solution of *any* salt the name of the salt should properly appear; therefore it would not be correct to make the terms "salt solution" and "solution of sodium chloride" synonymous.

However, as applying the term "normal salt solution" to the 0.6 per cent solution of common table salt, and the term "normal sodium chloride solution" to the volumetric solution of sodium chloride, might lead to confusion, why bother ourselves about this latter solution at all?—for it is practically never used and only exists by grace of the United States Dispensatory. It is the physiological salt solution we, as physicians and surgeons, wish to use, not the volumetric; and, as before stated, as the former corresponds almost exactly in the strength of its saline constituents to those in the normal human blood, we feel obliged, and rightly, too, I think, to continue to call it "normal salt solution."

Yours truly,

W. H. ROBERTS, M.D.

# TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

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*Stated Meeting, December 15, 1898.*

*The Chairman, E. P. DAVIS, M.D., in the Chair.*

DR. CHARLES P. NOBLE read a paper on

## THE REPORT OF THREE OPERATIONS UPON DIABETIC PATIENTS.<sup>1</sup>

DR. J. M. BALDY.—It is surprising the number of superstitions which are handed down in surgical literature which on investigation prove to be so absolutely untrue that it is a matter of surprise that they have hung fire even as long as they have. This question of surgical procedures being contraindicated on account of the fear of diabetic gangrene seems to be one of the worst. Since seeing the announcement of Dr. Noble's paper I have not had a chance to look at my records, but I distinctly recall three cases of diabetes on which I have operated. When they came under my care the condition had not been recognized. In one case the condition was discovered by the nurses in the hospital. One was some six years ago, a case of complete tear of sphincter ani muscle. She was a stout woman with an immense amount of sugar in her urine. The operation was done in spite of the diabetes. The wounds healed kindly and without any complication whatever. The patient was put on diabetic treatment subsequently, and when she left the hospital the sugar and quantity of urine had been reduced very materially. She was also an opium-eater. The opium was gradually withdrawn, and she left the hospital taking only one-quarter to one-sixth of a grain daily. She went home, and being used to a generous diet, both as regards alcoholic stimulants and rich food, she became worse and suffered more or less from her diabetes. She kept on taking opium to relieve her trouble. To-day she is still an opium-eater and still suffers from diabetes.

The second case was one of procidentia. We discovered diabetes after she had had the operation performed. She had the usual plastic work and hysterorrhaphy. After the operation the nurse called my attention to the fact that she was passing an inordinate amount of urine. I had her urine examined and found sugar in abundance.

The third case was an operation that involved a general clearing out of the pelvis, and though the fact was known that

<sup>1</sup> See original article, p. 182.

she had diabetes before operation, it was not delayed on account of that disease. She had no trouble whatever. I am very sure if I could go over my records I would find other cases. These three I can recall very distinctly. I have never yet had one that behaved badly. I have never yet had one in which the operation has increased the sugar in any shape or form, and I cannot see why there has been this inordinate fear of touching diabetic patients with the knife.

DR. RICHARD C. NORRIS.—I have had very limited experience in this subject, but I cannot take the same view of these cases that Dr. Baldy does. I know of one case where a patient underwent the operation of simple dilatation of the uterus and curettage. It was discovered afterward that she had diabetes, and the patient died within three days in diabetic coma. She was not under my immediate care, but I saw her in consultation. I have had some experience with diabetic women in labor at term. One patient, to whom it was necessary to give an anesthetic, almost died in diabetic coma. She fortunately survived. I think the possibility of an accident is sufficiently important to warrant an examination of the urine always before operating on a patient. The surgeon should not wait until after operation to learn if she has diabetes. It is not only a question of primary union of a wound. The administration of an anesthetic sometimes affects diabetic patients unfavorably. My own limited experience has been such as to make me believe we should be cautious about operating on diabetic patients. Dr. Noble has reported three cases, one of which died. Where even in a limited number of cases we find there are a few deaths, that fact is enough to make us cautious.

DR. H. D. BEYEA.—In this relation I wish to present before you the history of a case which has been of the greatest interest to me. A woman about 52 years of age was admitted to the University Hospital a year ago last summer having a large multilocular, colloid, oöphoritic cyst. After it was removed the cyst weighed twenty-two pounds. The patient was in the hospital three days preceding operation, and in making the customary examination the urine was found to contain a large amount of sugar—seven per cent. Also, in the opinion of Prof. Tyson, she had all of the characteristic symptoms of diabetes. There were great thirst and a ravenous appetite. The tumor was so large and causing such prominent symptoms that it seemed that operation was demanded. Regardless of the presence of seven per cent of sugar in the urine, and the other symptoms, I therefore deemed it most warrantable to operate. The tumor was removed without much difficulty, and after the immediate surgical convalescence, which was perfectly normal, I asked Prof. Tyson to take charge of the further treatment. The sugar gradually decreased in amount, and at the end of four weeks, when she left the hospital, it was estimated at four per cent. After two months her physician wrote me that the sugar had practically disappeared, and he discontinued the treatment for diabetes. At the end of six



months he again wrote me saying the patient was perfectly well; she had gained much in flesh and strength and was daily walking five miles; the sugar had been absent for some time. The rapid and uncomplicated convalescence after the removal of a large cyst of the ovary in a woman having all the symptoms of diabetes gave rise to the thought that there must be some relation between the presence of the cyst and the diabetes. I have partially looked through the literature for similar cases and have been able to find only one. This patient also had a multilocular colloid cyst, and she too got well. Whether this was a true diabetes or a functional glycosuria is a question to be considered. The only theory which might explain the presence of the sugar in such case is that the tumor pressed upon the pancreas. We know that diseases of the pancreas are sometimes associated with diabetes.

DR. G. E. SHOEMAKER.—My experience with diabetes in my own practice is nothing. I have never happened to have a case directly under my care that happened to have diabetes, but I have been in a position to observe the result in three cases of diabetes which have been operation cases. One of them I was asked to see with regard to the question of advisability of operation. I would say that Prof. Ashton was afterward consulted in this case, and he advised that unless the sugar were very abundant in amount the case be treated and operated upon. This was done, and the result was favorable. Another case was that of glycosuria, and that case was under my charge, but, as I was about to go on my vacation, she went into the hands of another surgeon of this city without my knowledge and was operated upon, and died within two or three days of the operation. The other case was the same one Dr. Norris referred to; it was under the care of a man we both know and was an exceedingly simple condition, and the case very promptly died with symptoms which were referable to the kidney condition. I believe, as far as this fear of operation in diabetes has any foundation, that the foundation has no relation to the occurrence of suppuration in the wound; that, except for the fact that a profound diabetic condition is one of great asthenia, there would be no difference in the healing of the wound; but I feel that the fear of the effect of ether and shock upon the diabetic is not entirely without foundation. In my own work I should operate without hesitation if the sugar were not abundant, after preliminary treatment in the case of cysts.

DR. J. M. BALDY.—Dr. Shoemaker spoke of a patient dying of symptoms directly referable to the kidney. What did he mean?

DR. SHOEMAKER.—I mean to the diabetic condition.

DR. BALDY.—It seems to me the question of deaths following operation in diabetics is not one to be wholly attributed to diabetes. In considering the subject it is entirely unjust to attribute any death which may follow an operation to the diabetes. We know of lots of patients who die after operation



without any such disease. Again, the whole question of the general condition of patient comes in. In the three cases I quote but one of them was known to have diabetes, but they were not bad cases in the sense that their general condition was a bad one. If we find patient badly broken down from any disease we would hesitate to give anesthetic and operate. We must take into account the condition of the patient; if she is a miserable wreck of humanity and dying on her feet, at any rate we must not attribute her death altogether to diabetes simply because there is sugar present. I think this is borne out somewhat by patients in good condition who have failed to die.

DR. C. P. NOBLE.—My patients, too, were in excellent general health.

DR. BALDY.—In spite of the diabetic condition ?

DR. NOBLE.—Yes.

DR. BALDY.—The general condition of the patient is a matter to be taken into consideration on general principles. If the patient is in a bad condition I should hesitate to operate. But the fact that young women have died decides nothing finally. I have seen just as young women die in the hands of operators, who have never had any diabetes. It does not seem to me because a few cases have died that a single one of these cases died from diabetes alone. We have all seen patients die just as unaccountably. I would say most emphatically I have never seen a single solitary bad symptom follow the etherization in a diabetic. If one is to judge from his own experience, I should be inclined to give little heed to fear of operation in a diabetic condition, unless the patient were in a distinctly bad physical condition.

DR. DANIEL LONGAKER.—I am not in a position to discuss the subject of diabetes in relation to operative interference in a special case. During the past summer I had a series of interesting observations on a man in whom there was present an intra-abdominal condition. This was as follows: There was an enormous enlargement of the liver; it extended down to the level of the umbilicus. When he first came under my observation the urinary condition was that which one would find in typical diabetes. This man was passing over two quarts of urine containing about 6 per cent of sugar. In about two weeks there was a complete absence of sugar. The case afterward, on postmortem, proved to have been a large abscess of the liver—a subdiaphragmatic abscess. He was not operated on, but the swelling was punctured with an aspirating needle. In order to clear our minds on this subject, we must realize the fact that the presence of sugar, even in large percentage, may mean various underlying pathological conditions, and what is diabetes in one given instance is certainly a very different condition in another. One, a woman in middle life, a rather high liver, keeper of a brothel, comes to me with such an eczematous condition of her vulva and thighs as I have never seen. Immediately the first thought that came to me was diabetes.

She complained of pruritic itching. An examination of urine showed a high percentage (something like 6 per cent) of sugar, which, on treatment continued over about two weeks, disappeared entirely, and she is practically well, and of course her eczema disappeared promptly. Another case of diabetes seen recently was a woman in old age, the first woman being in middle life. I was called to see this case by Dr. Robertson, who thought he had a bad case of leg ulcer, on which he desired to operate. This ulcerated patch on the lower aspect of the leg just above the outer ankle had a very suspicious appearance of diabetic gangrene, and I suggested an examination of the urine for sugar; and truly this proved to be a case of diabetes and the woman died quite recently, in about a month after I had seen her. The point that these cases illustrate is that diabetes may mean very various underlying pathological conditions in different cases.

DR. G. E. SHOEMAKER.—I would like to know if Dr. Noble refers to saccharine diabetes or diabetes insipidus.

DR. C. P. NOBLE.—I had intended to look up the literature of the subject, but lack of time prevented my doing so. There are a number of points brought out in discussion. As to the wisdom of examining the urine of all patients on whom operation is to be done, early in my surgical experience I had patients operated on who had chronic Bright's disease, and they all died then, because at that time we had practically no means of treating suppression of urine that were effectual. Therefore for the last eight years every patient I have operated upon has had the urine examined, and these three are the only saccharine diabetics in the number. So far as I know there has been only one case of diabetes insipidus in addition. I had one case that passed gallons of water. By putting her to bed for several weeks the amount of urine came down to a moderate point and I operated upon her. She also had a procidentia, which had been operated on three times by other surgeons. I presume one reason for the recurrence was the enormous amount of urine, the weight of the bladder with contained urine helping to bring about the condition. She remained well for three years after the prolapse operation, and when I last saw her the uterus stayed in position. Of course we have all seen cases of polyuria of moderate extent, but I do not take these into consideration. I believe the general idea had about operations on diabetics is that one should not operate lest the wounds become gangrenous. My experience and the experience of the other men who have spoken indicate that this is a mistake, that if the patient's general nutrition is good there is no reason to feel that the wound will not heal, and that the real thing to be afraid of is diabetic coma. The deaths reported by Dr. Norris and Dr. Shoemaker were from coma, and the death in my hands was from coma. She was certainly as favorable a subject for operation as any of the three I operated on; yet she died undoubtedly of diabetic coma, and she died in spite of vigorous treatment, including

the very large use of salt solutions under the skin, but nothing did any good whatever. It therefore seems to me that this is the possible cause of death which we cannot provide against, and it should influence our prognosis wherever we have to operate on a diabetic case. My own conclusion about the matter is that in such cases, if their lives are made miserable, it is the surgeon's duty to operate, provided the facts have been put before the patient and her friends. As to diabetes in general, I think all gynecologists see a goodly number of diabetics, and our experience in dealing with them is so favorable as a rule that one is inclined to take a more favorable view of diabetes than that which is held by the profession in general. I have seen a large number of diabetics who have come to me for pruritus vulvæ from eczema, and they have done well under treatment with codeine and strychnia. They have improved and many have remained practically entirely free from sugar in the urine and have had good health. These were women from middle age to old age, and are therefore more amenable to treatment than younger women. I should prefer to operate on an old diabetic rather than on a young one, because the disease seems to be much less serious than in young people.

DR. JOHN B. SHOBER read a paper upon

THE USE OF MAMMARY GLAND AND PAROTID GLAND DESICCATIONS IN GYNECOLOGY.<sup>1</sup>

DR. C. P. NOBLE.—In one aspect of this subject I have had some experience—that is, as to the use of the thyroid extract. I have given thyroid extract to about ten patients, and in doses much larger than those mentioned by the doctor, and I have never seen any symptoms from it at all, and I have been led to question whether the preparation was a reliable one. These patients have all taken fifteen grains a day for months. The thyroid extract was given to them largely to reduce fat, and consequently they have not very good hearts; but it has produced absolutely no depressing effect upon the heart. These patients were told to take one tablet a day, then two, and then three. I have never used the mammary gland extract, but Dr. Shober's experience is so favorable that if I have a patient who refuses operation I will try it. Parotid extract, at first thought, would cause wonder why it should be serviceable or have any effect upon the ovaries. I suppose the only thing in medicine that would throw any light on it is that patients with mumps get ovaritis and patients with ovaritis get mumps. I had a patient in the hospital on whom I did a conservative operation on her ovaries about two weeks ago. This patient had a large Graafian-follicle cyst in the right ovary and had multiple cysts in the left ovary, with cirrhosis of the stroma. She was recently married and very desirous of preserving the possibility of conception. We enucleated a cyst from one ovary, split the other, and sewed up what was left of the ovaries.

<sup>1</sup> See original article, p. 173.

On the third day she had a parotitis. I have seen two other cases of parotitis. In neither of the cases was there any question about pyemia. None of them were septic. I have seen one case of pyemia involving the parotid gland, in the practice of another surgeon.

DR. SHOBER.—Dr. Noble has stated the only basis upon which these preparations are used, as was pointed out by me last May. I was led to employ them because of the known relationship existing between the mammæ and uterus and the parotid gland and the ovaries. Dr. A. Duval Atkinson,<sup>1</sup> of Baltimore, reports two cases of parotitis following visceral inflammation, and quotes Stephen Paget in the *British Medical Journal* in 1897, who reports a series of cases of parotitis following injury and diseases of the peritoneum, generative organs, and abdominal viscera. All this is very significant in connection with the therapeutics of this gland. A very curious observation in relation to the use of thyroid gland in fibroid tumors of the uterus, and also in cases of menorrhagia, is that women who have disease of the thyroid gland invariably are sufferers from menorrhagia. We do not know the meaning of all these things. We are using these preparations empirically, and the time will come, perhaps, when we will be able to show good reason for their use beyond the fact that results can be obtained. I have found, however, in my experience with mammary gland, which I have used much more largely and extensively than the parotid gland in ovarian disease, that it does seem to have some positive influence upon the uterus. The fact that large doses of the mammary gland produce cramp-like pains in the uterus is extremely interesting. I convinced myself in two of these cases that these pains were not intestinal pains. One could feel the tumor grow hard under the hand when the paroxysm of pain came on. How this gland acts upon the uterus is, of course, unknown. It may perhaps stimulate the mammæ of the patient in such a way as to have some influence upon the uterus, as is observed during lactation, aiding the involution of the uterus. It may have some effect upon the muscular walls of the uterus or upon the glandular elements. That it does have an influence upon the excessive flow, checking it, that it prevents the menorrhagia and lessens the menorrhagia, is positive. I should be glad, if any of the members see fit to try this treatment, if they would send me their results, in order that I may complete my observations in this line.

DR. G. M. BOYD presented a specimen of a

#### RAPIDLY GROWING SOLID TUMOR OF THE OVARY.

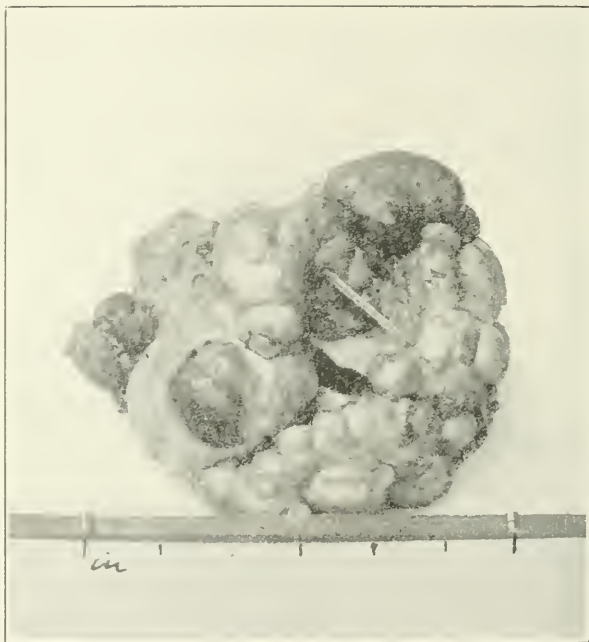
Mrs. F. was admitted to the Philadelphia Lying-in Charity four days ago, in an exhausted condition, so much so that immediate operation was not wise. She was married, age 30 years; has had two children. The younger child is 18

<sup>1</sup> Johns Hopkins Hospital Bulletin, No. 79, October, 1897.



months old. It was born at term, the labor in no way complicated. She states that she was well prior to the birth of this child, and only noticed six months ago a swelling. In the past two months the abdomen has become more and more distended with ascitic fluid. This great distension of abdomen on admission made it difficult to determine the exact nature of the pelvic growth. By deep palpation an irregular mass could be felt, which seemed to be connected with the uterus. Although the patient was young, she had the cachexia of a malignant growth.

Three days after her admission to the hospital it was necessary, because of great dyspnea, to perform paracentesis abdom-



Sarcoma of ovary.

inalis. drawing away five quarts of a rather dark, albuminous fluid. With the removal of this fluid the tumor stood out nicely; it could easily be diagnosticated the ovary. The tapping relieved promptly the dyspnea, but made no change in the pulse. She felt much improved and had a good night's rest—the first for a month. The following day the growth was removed. The mass is soft, irregular on surface, with a deep, crater-like cavity. The whole broad ligament was the seat of disease, the omentum and peritoneum studded with secondary deposits.

The case illustrates the inadvisability of waiting in cases of



rapid growth. The case is presented to bring forth the discussion of the danger of delaying operations; also to bring forth a discussion of the advisability of emptying the abdomen of ascitic fluid which is complicating a tumor at a time prior to performing a more radical procedure.

DR. E. P. DAVIS.—Was it possible to form a pedicle in this case?

DR. BOYD.—Yes; it was possible to form a pedicle in this case by extensive ligation. In placing the sutures there was extensive hemorrhage, rather difficult to control.

DR. C. P. NOBLE.—Were there any evidences of systemic infection?

DR. BOYD.—She was slim; had lost flesh rapidly; had rapid pulse; no febrile disturbance.

DR. NOBLE.—I have had occasion to operate on five solid tumors of the ovary. In one of these diagnosis was not made—I suppose it was a sarcoma. One of them was clearly a sarcoma weighing eight pounds; extended way up under the ribs. Another case the pathologist diagnosed as sarcoma, but I think he made a mistake, because I did not take it out and the woman is perfectly well now, six years later. As to the result of operations in these cases: In the very large sarcoma I did a hysterectomy with an extensive enucleation of the broad ligament some three years ago, and that patient has remained well. I have heard from her physician within a short time. In that case I was fearful that if no secondary infection occurred through the broad ligament there would be an adherent bowel. One tumor, which was lost, I believe was a sarcoma. The woman has remained well. The most interesting case was one in which the pathologist diagnosed sarcoma. She had been operated upon before I saw her. The surgeon who operated on her told her that if he removed the ovary she would bleed to death. I did not attach much importance to his dictum before operating. However, on separating bowels and omentum I came into a mass of brain-like tissue which filled the left side of pelvis and oozed everywhere. I believed if I continued the operation she would bleed to death. I packed the pelvis full of gauze and put a tight bandage on to control bleeding. I have seen her within a year, and, six or eight years after the operation, the pelvis is entirely clear and she is perfectly well. My personal experience with sarcoma has been very satisfactory. Of carcinomatous solid tumors, or apparently solid tumors, I have had two. Both of the patients were operated on within the past year. The first one was 70 years of age. She remained a maiden lady until 70, and some three months after marriage she came into my hands on account of obstruction in the pelvis. The pathologist reported it was a papillomatous cyst. The other solid tumor was somewhat similar to this, an old lady 65 years of age, suddenly and rapidly enlarged, and she was in very bad shape on account of pressure. I opened the abdomen, and there were three gallons of free bloody fluid and a carcinomatous tumor in the pelvis. Fool-

ishly I took it out. It was one of the most difficult operations I have ever done. The tumor was retroperitoneal. When tumor was out there was no peritoneum from kidney down to pelvis. As it was carcinomatous, there was oozing from the kidney down to control. I controlled it by a continuous catgut suture, all the time wondering whether each suture would catch the ureter. She made a recovery from the operation, but the growth is already advancing, and, while she feels perfectly well, I have no doubt she will live only a short time. As to whether to tap these cases or open the abdomen, I personally think it is not much more dangerous to open the abdomen than it is to tap. Unless the patient's condition is so grave that the chances are she will die on the table, I would be in favor of opening the abdomen. On the other hand, if one could make the diagnosis of malignant disease it would do away with operation, for it does no good to remove such tumors.

DR. J. M. BALDY.—There is a good deal we do not know about malignant growths of the abdomen, and I think we are all brought more closely face to face with that fact as we see more of that condition. I remember a patient Dr. Penrose operated on; he sent her home to die and to all intents and purposes she is perfectly well some years afterward. I myself saw a patient in whom there were solid masses (Dr. Morton and Dr. Stimson operated), a horrible condition inside the abdomen. They took out handfuls. I thought of course the man would bleed to death on the table, but he didn't, and the last heard of the man, a year afterward, was that he was gaining flesh and getting well. I stood in Dr. Keen's private practising room and discussed with him the advisability of removing a solid growth from the stomach, and decided, as the man was in such a bad condition, he had better be left to die. This man got well and the tumor disappeared. I am feeling much chagrined myself over a case I operated on and sent home with the absolute prediction that in six months or less the woman would die, as her case was hopeless. It is two years now and the patient and her friends take great pleasure in joking me on my prognosis. I think we can reduplicate these cases time and again. It all simply means there is considerable about the disease we do not understand, that we are still in the dark, and very badly in the dark, in regard to these conditions. In all four of these cases I have mentioned any surgeon would have predicted beyond any possibility that the patient would die within six months or a year.

The question Dr. Boyd asks in regard to these tumors I think is a perfectly plain one. If the patient dies it is not the fault of the surgeon; it is the fault of the physicians through whose hands the patient has been passing the last year or two. They should be referred earlier for operation.

It is notorious that malignant tumors that have remained quiescent will begin suddenly to give trouble, and a tumor which has been known to exist as a tumor for five or six or

ten years will suddenly within six months almost kill the woman, whereas previously she only knew that she had a "lump" in her belly. When a patient comes to the surgeon in such state, no one can expect that you can do more than give her the one chance in a thousand; it is not every man who will even do that, and when he has the courage to do it he is not to be blamed for the result. Unfortunately, however, it does not make much difference. The friends of the patient will always blame him for doing the operation in any event. I am afraid Dr. Boyd will have to find his consolation in this case in the fact that he did his duty.

As far as tapping is concerned, I feel like Dr. Noble. I would rather make an incision half an inch long for exploration, and turn out a little bit of peritoneum to get a glance at it with the eye, than to pass a trocar. If necessary it can be done under the freezing process. In these cases, if the peritoneum is studded it is useless to attempt to remove the tumors. I know there are some cases that have gotten well, in spite of bad prognosis, where there have been apparent secondary deposits all over. Still, from the general run of cases I think it is best to let them alone when we know that general infiltration has taken place. I am exceedingly loath to operate in these malignant cases. My own experience in them has been exceedingly bad. In the first place, they will not bear any shock. They will not bear the simplest kind of manipulation without throwing them into a condition that will keep you in fear that they are going to die for the next two or three days. I have known a five minutes' operation to cause a patient to almost die, and it took weeks for her to recover. It generally leads to little good, and in spite of the fact that some of these patients have gone home and recovered, I prefer to not operate where I have the choice. Pathologists thus far have failed to give us much aid. Those which seem most favorable will return; those that seem most desperate will remain well.

At the same time if you take the solid malignant tumors of the ovary the chances are good. I have removed three or four globular ones; no adhesions or infiltrations. The pedicles were as good as in simple ovarian cysts, and the patients have gone six or seven years without the slightest return or ill health. The three were all pronounced sarcomata. Where there is no infiltration, with free pedicle, I feel pretty sure that the patient is going to remain well. The chances are strongly in favor of no recurrence.

DR. SHOEMAKER.—I have observed that those cases which disappear spontaneously are those diagnosed as probable sarcoma. I have never seen a case which was diagnosed as scirrhus which disappeared spontaneously. It is not without interest that Dr. Coley's serum proves efficacious only in cases of sarcoma. It may be that sarcoma is under nutritive influences which we do not understand, but that it may be more susceptible to treatment and favorable action of remedial influences than the other group of tumors.

DR. NOBLE.—I think the explanation of the cases that are sent home to die is that we have made a mistaken diagnosis. Of course it is well recognized pathologically that we have papillomatous tumors which are malignant and papillomatous tumors which are not malignant, and clinically I do not know how to differentiate one from the other. I recollect very well one patient that I operated on for two hours to try to get into the peritoneal cavity, and did not get in; then I stripped out a great deal of tumor and papillary material, but it was evident to me that it was impossible to get the tumor out, so I scraped out all I could and sent her home to die. She was fat and hearty in six months, and years afterward she was perfectly well and did not have even a fistula. The explanation in that case was that it was a non-malignant tumor—I think that is the explanation; but often in cases where we suppose a malignant tumor has been found we send the patient home and she gets well. I have opened the abdomen a number of times where a papillary tumor was found so infiltrated it was not thought feasible to remove. All these cases were accompanied by ascites. I have abandoned operation and closed abdomen in such cases when it is not feasible to do a clean enucleation. In the prognosis in these cases of papilloma we should be careful not to say that they will die promptly. My experience has been that they have lived six or eight years, each one of them.

DR. E. P. DAVIS.—The remarkable results following drainage in tubercular peritonitis, and the tremendous absorptive power of the peritoneum, are two well-known facts. These may serve to explain the recovery of some of these curious cases, and may be a hint as to the disposition of the strictly non-cancerous growths.

DR. G. M. BOYD.—The patient died a few hours after the abdominal section. She bore the tapping very well. It was indicated last evening. Dyspnea markedly developed, and it did not seem advisable to me then to give the patient an anesthetic and perform a section for that purpose, hoping that I could tide her over until daylight to do something more radical. The removal of this mass was not a very difficult procedure, and it surprised me that it was accompanied with the amount of shock. It simply illustrates the remark that Dr. Baldy made that cases of sarcoma do not bear well operative interference.

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## TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

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*Meeting of October 11, 1898.*

*The President, L. E. NEALE, M.D., in the Chair.*

The annual election of officers resulted in the choice of the following-named gentlemen to serve for the ensuing year:



*President*—Dr. J. Whitridge Williams; *First Vice-President*—Dr. T. S. Cullen; *Second Vice-President*—Dr. J. M. Hundley; *Secretary*—Dr. W. W. Russell; *Treasurer*—Dr. J. M. Craighill.

## SYMPHYSEOTOMY.

DR. L. E. NEALE.—In this, my only experience with the operation, the patient was a colored girl about 17 years of age, unmarried, had not been previously pregnant. She was first seen in the out-patient department of the University of Maryland, and was subsequently brought into the lying-in hospital, where she went into labor two days later. The past history of the woman was, as far as we could elicit, uneventful, but she seemed to know very little about herself. Her parents were living, and, so far as she knew, were in good health. She had no brothers or sisters. Her condition was one of marked rachitis. The woman was within the last week of full term, first pregnancy, the child presenting in the ordinary left occipito-anterior position. The pelvic measurements were all below the standard, a true conjugate of  $3\frac{3}{4}$  inches being estimated. Several others besides myself made these measurements and agreed upon this point. The diagnosis of flat rachitic pelvis was made. There was pus in the urine and kidney complications, so this made the operation look unfavorable. She went into labor on the night of the 24th of April; the membranes ruptured early, before the full dilatation of the os, and the head was only partly engaged in the pelvic brim.

I think our first mistake was made in attempting a high forceps operation after the woman had been in labor twelve hours. This was done by my chief of clinic, as I was not present, and it failed after several vigorous attempts. Preparations were made for symphyseotomy, and after consultation we determined on this operation, which I think was our second mistake. The symphysis was found without difficulty, the index finger was passed behind, and with an ordinary scalpel the ligament was cut through from above downward and from without inward. There was considerable oozing; the wound was immediately packed with sterile gauze, and we at once proceeded to deliver with Tarnier forceps. I do not think it would have been judicious to have left it to Nature at this stage, as the woman was under chloroform for the second time, the fetal heart sounds were very weak, and I do not believe that delay would have increased the chances of saving the child's life.

The difficulty in delivering the head, even after complete separation of the ligament, was exceedingly great. The separation of the bones occurred to the extent of 9 centimetres, which is placed by Wehle as a safe limit, for beyond this, he says, the sacro-iliac joint might rupture. There was, however, great difficulty in dealing with the forceps, and after considerable time and severe contractions we succeeded in delivering



only a still-born child. The head of the child was fully up to the normal standard, and in some directions in excess of the average; the occipito-mental diameter was  $14\frac{1}{2}$  centimetres, the suboccipito-bregmatic  $10\frac{1}{2}$  centimetres, and the biparietal  $9\frac{1}{2}$  centimetres. It was a fully developed, thoroughly ossified head. We supposed, by careful examinations before operation, that the head was a fully developed one; but, of course, accurate measurement of the head prior to birth was impossible, and I think this is one thing that will always render the results of the operation questionable. The uncertainty of the result, as compared with other major operations for saving the life of the child, it seems to me is a very unfortunate feature of the operation and would make one hesitate.

The child, as I said, was still-born. There was some slight injury to the tissues about the region of the anterior wall, but the bones were united, and we bandaged with a tight roller bandage and around that placed a surcingle. On the second day her temperature began to rise, the bones failed to unite, and on the fourth day I performed a second operation to bring them firmly together, and succeeded in suturing them with silkworm gut. Then we put on a plaster-of-Paris cast and she was put to bed, where she went through a most violent experience of true streptococcus septicemia. Now, whether she was infected at the time of operation or by the pus organisms in the urine I am not prepared to say. Her temperature ran for weeks between  $99^{\circ}$  and  $103\frac{1}{2}^{\circ}$ . The wound was dressed on ordinary surgical principles, and after a long and tedious illness she recovered entirely, with complete use of the body, as far as the use of the limbs, etc., is concerned, and left the hospital to all intents and purposes a well woman. There is, of course, no bony union, but a fibrous symphysis.

Now, in considering this case, I am disposed to think it was not handled in the most scientific manner. I say that, of course, with the feeling that it is not always pleasant to acknowledge one's errors, but because I think one can learn as much from errors as from successes. I should not attempt to operate again in this way upon a woman in the same condition. I think a Cesarean section would have given a better chance of saving the living child, and that the chances of the woman would also have been greater, as she would have had less risk to run from septicemia. No septicemia existed at the time of operation.

Again, this is only another of the futile attempts to deliver a woman by high forceps and then subject her to a major operation that should have been done in the beginning. Indeed, I think this error, which is so common and which I fear may be so in the future, is one in which, if we do not condemn our patient, at least renders her chances of recovery by major operation far less.

I may cite a case, that has been mentioned here by myself, where a similar error was made. A patient presenting a seven centimetre true conjugate was delivered by craniotomy on a

dead head after having first attempted high forceps. I regretted very much that the case had to be terminated that way, and made up my mind that in the next similar case I would act differently. Within three months another case appeared with the identical measurements. I was notified at once when labor began, gathered my instruments, and started there, but the woman was spontaneously delivered before my arrival. I think Dr. Williams has told me that he saw a delivery take place while the symphyseotomist was preparing his instruments for operation. This shows that we have not yet reached accuracy of judgment in this class of cases, which should only stimulate us to make the most careful examination of the patient before operation. I know of no means by which we can arrive at anything like as true an opinion as to what should be done as by careful, accurate pelvimetry. Of course, no matter how accurately you measure the pelvis, there are other things that cannot be determined, bearing directly upon the result—*e.g.*, size and compressibility of unborn head, yielding of soft parts, etc.; but rather than that this should discourage us, it ought to encourage us to be more careful in the future.

The lesson I learn from this case, then, is the same I thought I had learned before—not to attempt any other method of conservative delivery prior to the major operation by which we must ultimately deliver. So long as we attempt versions, forceps, etc., first, just so long will our results be bad.

DR. WILLIAMS.—I saw this case with Dr. Neale, and, while I regret the unfortunate ending of it, I do not feel like indorsing Dr. Neale's conclusions. I examined the woman before the operation and found the cervix torn and lacerated from the forceps operation. I thought the operation of Cesarean section was contraindicated, because any woman who had been subjected to such vigorous manipulations must already be infected. The only other thing to be done was total extirpation of the uterus, and in this woman I did not think the chances were as good as in a symphyseotomy.

The moral, to my mind, is that we should be extremely careful how we apply our forceps to these cases. I make it a practice in my hospital work to have the woman put on the table, everything prepared for symphyseotomy, and then personally apply my axis-traction forceps to the sides of the child's head, and not to the sides of the pelvis. I make several tractions, not more than three or four, and if the head follows I deliver it, but if it does not follow three or four fairly strong tractions I take off the forceps and do a symphyseotomy. If we apply the high forceps and pull until tired we subject the woman to infection, and if we then subject her to any major operation the probabilities are that she will succumb.

I must confess my personal experience with symphyseotomy is not very encouraging. We had a large number of cases at the Johns Hopkins Hospital in which we thought we would have to do the operation, but in only two cases has the opera-

tion materialized. One case was reported to you last year by Dr. Dobbin. The second case was that of a woman entering last July, upon whom I made diagnosis of a tipping downward of the vertical column into the pelvis. Her true conjugate was  $7\frac{1}{2}$  centimetres, and we determined to do Cesarean section. The woman refused, however, and said if she had to die she would prefer not to be operated upon. She went a week or ten days over time, and after going into labor had to submit to symphyseotomy. She died at the end of a week with symptoms of embolism. She had no high temperature, but we were certain about the sepsis part.

I must say I am not an enthusiastic symphyseotomist, and I think the vast majority of men who do a large number of these operations do them upon cases that do not justify it.

DR. CULLEN.—I think any of us who have had any work to do with sepsis can understand that there may be sepsis no matter how much care is exercised. If symphyseotomy be done a future pregnancy may take place and you may again have the same trouble, whereas Cesarean section puts an end to it.

The question arises whether, if you do a Porro operation, you should leave the appendages. I think in the future the Cesarean section will be the operation, and that if the uterus be removed the appendages should be left in nearly every case to do away with the artificial menopause.

DR. ASHBY.—I reported last winter a case in which the woman had a conjugate of seven centimetres, with an apparently large child, and I was satisfied that symphyseotomy would be required. Preparation was made for the operation, the patient was put on the table, and I applied forceps, with the result that after a pretty good traction the head came down into the pelvis and the child was delivered without difficulty. I think the method of trying delivery should be made in all cases, but I agree with you fully that traction should not be applied for any great length of time.

I saw a case with Dr. Brinton once, in which a physician who had seen the case before Dr. Brinton had tried several times to use the forceps and had bruised the tissues a great deal. After the symphysis was opened there was no trouble in delivering, and the woman (I do not know why) was not infected. I learned a few days ago that she expects to be confined again soon.

DR. BRINTON.—Those who heard Dr. Hirst here last winter must have been surprised at the statistics he gave. It shows that men are apt to publish their favorable cases only. The mortality in Baltimore, counting the two lives, has been, I think, 75 per cent. The average man, without exceptional facilities, cannot do Cesarean section without 25 per cent mortality, or symphyseotomy without 25 to 40 per cent. It is a very costly operation, and unless men are skilled in doing this kind of work it must give a high mortality. I agree with Dr. Williams that many cases are operated upon that should not be. This is espe-

cially true of Paris. I know in Baltimore of five operators who have operated seven times; 4 mothers have died and 2 children only have lived.

DR. NEALE.—I refrained from mentioning the statistics of these operations, because one can prove any point by statistical evidence. To my mind the Cesarean operation would have been preferable for this woman, because it would have subjected her to very little more shock, the child would have run less danger to life, and, notwithstanding the mutilated uterus and cervix, we would have cut off the chances of hemorrhage and sepsis. As regards the ease and facility of the Cesarean section, I do think it is no more difficult than symphyseotomy.

DR. J. WHITRIDGE WILLIAMS presented a paper on

THE BACTERIA OF THE VAGINA AND THEIR PRACTICAL SIGNIFICANCE, BASED UPON THE BACTERIOLOGICAL EXAMINATION OF THE VAGINAL SECRETION OF NINETY-TWO PREGNANT WOMEN.<sup>1</sup>

DR. BRINTON.—I am very glad to hear Dr. Williams' paper, as I had the pleasure of hearing his former paper in 1893, and I am especially glad to hear now the statement that after more thorough investigation he believes in the majority of the cases the poison must come from without. It would be a very dangerous statement to say that in a certain number of cases women might infect themselves at childbirth. When Dr. Williams read his paper in 1893 we were somewhat surprised that he could have found that the woman was so dangerous to herself. This present paper must have required a great deal of labor and I am sure must be correct. I have always believed that in cases of puerperal septicemia the poison came from without and not from within. My own experience has confirmed that. We have had 400 cases in our hospital without a death from sepsis, and I believe it is possible, with rigid precautions, that a thousand women can be delivered without a death from sepsis. This could not be true if there was a possibility of autoinfection.

DR. NEALE.—Even if there was such a thing as autoinfection, it would not be a wise thing to teach. I know it has been my habit, and perhaps that of Dr. Williams also, to teach that puerperal infection is always brought from without.

Another practical point is the harmful nature of vaginal douching. That, I am happy to say, the paper seems to absolutely settle. I need only refer to my earlier days to recall a number of cases of sepsis that were positively produced in this way.

DR. WILLIAMS.—I would just like to add that this second series of cases that I have just reported shows what a dangerous thing the examination even by a sterile finger is. We found that in the use of sterile glass specula we carried in organisms. If done previous to labor the vagina possesses the

<sup>1</sup> See this JOURNAL for October, 1898.



property of destroying the organisms; but when the woman is in labor this does not hold good, because the organisms are not killed off so rapidly, and especially in the latter part of labor. No matter how carefully we scrape our fingers, we cannot thoroughly sterilize them, and in a certain number of cases they must carry in organisms. That teaches us that we should limit vaginal examinations to the smallest possible number, or do away with them entirely if we can. We are now learning to perfect our technique so that we can effect delivery by external palpation alone, or at most not to make such examinations more than once or twice. I will say here that if restricted to external palpation or to vaginal examination as the means of determining the position of the child, I would prefer the former, for you will fail less frequently by it.

DR. BROWNE.—I would like to ask Dr. Williams if in any of these cases where he got the secretion by means of the glass tube he used disinfectants or washed the external genitals.

DR. WILLIAMS —No, sir.

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*Meeting of November 8, 1898.*

*The President, J. WHITRIDGE WILLIAMS, M.D., in the Chair.*

DR. W. H. MOSLEY presented a case of

MYXOFIBROMA; EXHIBITION OF SPECIMEN.

The patient was a colored woman, about 40 years of age, whose family and personal histories were perfectly negative. Her menstruation for ten years had been profuse, and for three or four years irregular. She says that three or four years ago she noticed a tumefaction, beginning in the right iliac fossa and rapidly extending upward, and soon afterward another tumor appeared in the left side. She came under my care the 1st of last June, and I had her under observation for some time, because her general condition was not of the best and I wished to build her up. On account of extensive bleeding I put her on thyroid extract. The bleeding diminished very much and I sent her out of the hospital for a while.

She came back into the hospital in October, and on the 14th I removed this growth. It was adherent to the upper portion of the large intestine, and the appendix had to be dissected off. On the left side the growth was extensively adherent to the omentum. The growth started from the posterior and lateral portions of the uterus, and the cervix was stretched out over the tumor so as to make a little point about one-half inch thick. The vessels were very much enlarged, the ovarian veins extended up over the face of the tumor, and there was bleeding from every point where the tumor was shelled out.

The tumor has shrunk about twenty-five per cent in size since its hardening in formol, but it weighed after the opera-



tion twelve and a half pounds. The patient has done very well, the only trouble being extreme shock immediately after the operation, the pulse reaching 150 and the temperature  $102\frac{1}{2}^{\circ}$  within twenty-four hours, but it gradually came down and has remained about normal. There has been nothing eventful in the subsequent history of the case, and she is doing exceedingly well.

The pathologist's report states simply that it is a myxofibroma 28 centimetres long, 20 centimetres broad, and 62 centimetres in circumference.

DR. T. A. ASHBY presented a paper on

INTESTINAL LESIONS ASSOCIATED WITH INTRA-ABDOMINAL  
OPERATIONS—REPORT OF FIVE CASES OF RESECTION  
OF THE ILEUM.

DR. B. B. BROWNE.—I have had no experience with the Murphy button, but I have, however, in malignant disease of the ileum where it was impossible to use the button, brought out the ileum, made an artificial anus. In one case, performed about a year ago, although the malignant condition of the bowel remained, the patient was improved very much, is still living in very good health, and does not complain of much inconvenience.

DR. W. W. RUSSELL.—Dr. Ashby spoke of the Halsted method prolonging the time. I have had no personal experience with it, but Dr. Halsted and his assistants claim, since they have introduced the dilatable bags, that it can be done now within ten to fifteen minutes.

This experience of Dr. Ashby is astonishing, and I doubt if any one else has seen such a number of cases. I suppose I have seen in this city two or three thousand abdominal operations; there has been among these but one case of end-to-end anastomosis after resection. We have never had positive indications for end-to-end anastomosis except in this case. Frequently the bowel has been badly torn, but we have always been able to repair it by direct suturing.

I would like to ask Dr. Ashby what he considers the indications for resection of the bowel, because it is a very important matter, and, considering his success, he should be able to tell us exactly what they are.

DR. J. WHITRIDGE WILLIAMS.—I have used the Murphy button in two cases and my experience has been not quite so good as Dr. Ashby's. In the first case a woman with tuberculosis of the lungs gave birth to a seven months child, and complained, during a day or so preceding the birth, of sharp pains in the abdomen. The child was born without any great trouble, and for the first day or so the woman did pretty well, there being no temperature, but considerable pain in the lower part of the abdomen. As the puerperium went on pain became more marked, and I found it impossible to move the bowels, so the diagnosis of obstruction was made. The woman refused

to be operated upon, and persisted in this refusal until she had been vomiting fecal matter for three days. I told them then that her chances of recovery by operation were not good—in fact, about nineteen out of twenty that she would die—but, as it was the only thing to be done, I performed the operation. She had gangrenous areas through the bowel, the starting point having been a tuberculous ulcer, and the intussusception was several inches long; the diseased parts were dissected out and the Murphy button used, but the woman died that night.

The second case was one more or less like that of Dr. Ashby, in which the woman had an intense pelvic inflammation, and in the attempt to free the tubes and ovaries I tore such a large hole in the intestines that it was impossible to stitch them together without almost entirely occluding the lumen. This woman made a perfect recovery.

In spite of the good results in this one case of mine and the four cases of Dr. Ashby, I do not think the Murphy button is the ideal operation, unless the woman is extremely shocked. In the average case, where the woman is in fair shape, I do not think it is as scientific an operation as the end-to-end anastomosis.

There is one other point in Dr. Ashby's paper that interested me—that was in reference to the first case with perforation of the uterus. It is foreign to the subject, but is a matter much discussed in the past year, and you will pardon me for referring to it—that is, the readiness with which the uterus is perforated. There have been repeated articles concerning the introduction of the sound into the uterus to a much greater distance than the normal length of this organ; some observers have stated that the sound went into the tube, others that the uterus was pushed before it, while others claim that the sound had perforated the uterus. One man had this happen to him, and was so pleased with it that he took out the sound and introduced it again three times to demonstrate it to the students. Nothing happened to this woman, but I believe the uterus was perforated.

I remember one case in which the curette suddenly slipped and disappeared up to the handle in the operator's hand. I do not think in these cases it is necessary to suppose that the man exercised brute force, but that the uterine walls were abnormally soft and perforation readily occurred. In the *Centralblatt für Gynäkologie* only last month this subject is considered, and the author refers to a condition which he calls edema of the uterine walls. Through such a uterus a sound might perforate almost from its own weight.

DR. L. E. NEALE.—In connection with the last case you mentioned, Mr. President, I would say that there are cases of perforation of the uterine wall which do not absolutely necessitate surgical procedures for their recovery. I remember one that occurred in my experience about fifteen years ago. A colored woman came into the dispensary of the Maryland Hospital for a uterine hemorrhage following supposed abortion

brought on with criminal intent. What instrument she had used we could not determine. She was put under the care of two advanced students, who removed with fingers and curette fragments of placenta, chorion, etc., and the woman walked back to the dispensary the next day, but on examination we found that the cervix was patulous and the finger could pass through the top of the uterus into the abdominal cavity and be felt on abdominal palpation. Notwithstanding our lax methods of technique in those days—no less than five men passed their fingers through this perforation—she was put to bed, given one douche, and made an uninterrupted recovery, leaving the hospital within ten days perfectly well.

DR. ASHBY.—It seems to have been my misfortune to have these cases. I did not invite them and didn't want them, but I believe the method I employed saved four cases out of five, and any other method might have resulted in greater mortality. As for the indications, I think if Dr. Russell will follow each of the cases given they will be found well marked. In the first case there was nothing else to do. Whether I ruptured the uterus or not I do not know, but the effects were the same. I am willing to admit that I did the whole thing, but the treatment I gave was the only thing that could be instituted in that case. In the second case I had a large broad-ligament cyst, and the intestine was so tied up that I could not separate it, so I resected; and I do not believe any other method of treatment, unless you could have drained the sac, would have done any good at all. To drain even would not have been a complete operation. In the fourth case the intestine was found honey-combed by abscess and was really rotten. If I could have taken out fifteen or twenty inches of intestine I might have saved this woman, but one portion was tied down so by adhesions that I couldn't get it up and approximation was not perfect. The Murphy button did not hold, she became infected and died of septic peritonitis. I do not know of any other method of treatment that would be applicable to the fifth case.

Of the cases mentioned by Dr. Neale I would say that I do not suppose there is so much danger in passing the hand through a clean uterus into the abdominal cavity, but if there was any septic material present the result would be different.

DR. G. BROWN MILLER read a paper on

#### BACTERIOLOGICAL INVESTIGATION OF UTERI REMOVED BY OPERATION.

DR. J. WHITRIDGE WILLIAMS.—Dr. Miller's paper is one of very considerable interest and he should be congratulated upon having done such a large number of cases. It is very gratifying to know that the gonococcus is the most frequent micro-organism found in the non-infected uterus, and this is the general belief. At one time I examined a considerable number of pus tubes and I found the gonococcus in nearly all, the tubercle bacilli in a few cases. The statements that Dr.

Miller has made concerning the uterus apply just as well to the tubes.

There is one point of very great interest brought out by Dr. Miller—that is, that we may get an infection of the uterine cavity without the introduction of the finger in cases in which we have sloughing material in the cavity or a continuous discharge from the cervix downward. This is also the case in obstetrics, in the pregnant woman. When one comes before you and says that the vagina of the pregnant woman is, practically speaking, sterile, you will ask him how he explains the fever in neglected labor cases in which the women are not delivered and have not been examined by anybody. We know that, if left alone in cases where the head is too large to pass or the woman's parts too small, she will die of infection or the uterus will rupture. The infection takes place by direct extension from the external genitalia, by the vagina, to the cervix and into the uterus. That is not autoinfection and does not speak against the results brought forward by a number of observers concerning the relative sterility of the vaginal secretions in pregnant women.

W. W. RUSSELL,  
*Secretary.*

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## TRANSACTIONS OF THE ST. LOUIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of October 20, 1898.*

*The President, W. B. DORSETT, M.D., in the chair.*

DR. PREWITT, in presenting a specimen of

### EXTRAUTERINE PREGNANCY,

said: I saw the woman for the first time yesterday morning, and on making inquiries I found that she had menstruated last in June and had three weeks ago what was seemingly a miscarriage at the end of the third month. She had never been pregnant before. The physician who attended her at that time did not find the fetus, but there were some well-defined membranes. I was asked to see the case yesterday morning, and on examining I found a tumor plainly visible above the pubes, which could not be separated from the uterus, and was fixed firmly and immovably in the pelvis. The pelvic portion was solid, while the upper portion was cystic and fluctuated distinctly. The clinical history was ill-defined and I could not learn that she had had anything wrong about the pelvis before. She did not have a great deal of pain when I saw her, and never had had distinct collapse in connection with it. When the first physician saw her he found her pulse good—it



was never over 100—there was no evidence of loss of blood, nothing to indicate that she had had a severe hemorrhage. She had had a little fever the last few days—night before last her temperature was 100°, last night 99°—and I determined to make an exploratory operation. On opening the belly I found an adhesion of the peritoneum to the surface of a distinct, well-defined sac. The peritoneum was thoroughly adherent. I stripped the peritoneum from the front of the tumor and went down the side, and presently blood escaped. Evidently I had broken into the sac. I then thought, This is an extrauterine pregnancy. After getting out the blood and fetus, I got hold of what seemed to be the Fallopian tube and tied it off. It cut through very suspiciously, and I put on clamp and allowed it to remain to prevent bleeding. The sac was then packed with gauze, and, as she was much collapsed, a pint and a half of salt solution was injected into a vein.

DR. DORSETT.—Is this not an escape of the fetus from the fimbriated extremity, and so a case of abdominal pregnancy rather than a tubal pregnancy?

DR. LUTZ.—Did you find the ovary?

DR. PREWITT.—No.

DR. BROWN.—Did you enucleate the sac?

DR. PREWITT.—No; it was a firm sac. I do not see how such a sac could have formed in three weeks.

DR. CROSSEN.—What were the indications for an immediate operation?

DR. PREWITT.—The presence of the tumor and the fever.

DR. CROSSEN.—Was she getting rapidly worse?

DR. PREWITT.—Not rapidly worse, but she had fever.

DR. MOORE.—How was the reaction after the operation?

DR. PREWITT.—She was pretty cold.

DR. MOORE.—And after the transfusion?

DR. PREWITT.—The pulse improved a little immediately, but her condition was one of collapse. This evening I saw her, and she is thoroughly warmed up, bright, and cheerful. The amount of blood she lost I do not think was enough to cause collapse in a woman in ordinary condition.

DR. LUTZ.—We have learned to make a diagnosis of extrauterine pregnancy with comparative readiness, so that now, like appendicular inflammation, it is supposed to occur so much oftener than formerly. There are a great many obscure things about this case, more particularly the anatomy of it, which unfortunately cannot be cleared up. Had I anticipated this presentation I could have brought a specimen which is much more simple than this, but which illustrates many points in connection with extrauterine pregnancy.

The case I refer to was that of a woman, about 28 years old, who, nine years prior to her present difficulty, had given birth to a child which had lived. She had no miscarriage in the meantime, and, while she was always a delicate woman, had enjoyed comparatively good health. She stated that for two

months she had missed her menstruation and for a month had had very considerable pain on the right side of the abdomen; she was anemic, but apparently had no evidence of recent loss of blood. Her temperature was  $100^{\circ}$ , and on examination I found an exquisitely tender tumor or swelling covering the right half of the vaginal roof, which could be clearly made out by bimanual palpation. She had suffered, as she said, pains the month before which were just like labor pains, and she was again suffering with what she said were clearly labor pains. There had, however, been no expulsion, or rather there had been nothing observed in her vaginal discharges. I opened the abdomen and found a roof formed by the intestines and omentum, and when I separated the adhesions some blood welled up, not very much though, and there was no other bleeding. I succeeded in enucleating the tube, the ovary, and the sac, and found the fetus in the ruptured sac, or in a fossa distinctly surrounded by membranes, and succeeded in removing the entire mass very readily. She was about two months pregnant.

Now, another point that comes up in connection with this, which Dr. Prewitt mentioned only casually, but which I think is a very important matter in connection with these cases, is the question of transfusion. I believe that we do not transfuse often enough; I believe we allow our patients to go on through a protracted recovery, after the loss of a great deal of blood—through a protracted period of recovery, which period could be materially shortened by transfusion. In my own experience I am free to confess that I have been guilty of a number of sins of omission in that direction. It is only in extreme cases that transfusion is resorted to as a rule. I think it is a method that should be much more often employed, especially in cases such as this, where a large quantity of blood has been withdrawn and where the heart's functions are materially influenced by the absence of a proper quantity of blood. I had this subject brought home to me this summer in a manner that fairly made my hair stand on end. I had done a laparotomy for cystic ovaries in a young woman at 12 o'clock noon, and I prided myself on having done as clean an operation as could be, and the patient seemed to get along very well during the afternoon. The wound had been closed with buried suture and an occlusion dressing. At 9 o'clock that night I was hastily summoned, and found her pulseless, blanched, and with all the dressings saturated with blood. Just as rapidly as I could I got her into the operating room, removed the dressings, and found her intestines closing the abdominal incision; and as soon as I put my hand into the belly I found the whole abdominal cavity filled with blood, and of course the woman was pulseless and blanched. She was so shocked that it was unnecessary to give her an anesthetic; she lay there almost lifeless, and nothing could have gratified me more than to see how her pulse came up under the use of an intravenous injection of physiological salt solution; a quart was injected.

It was done while I was attending to the checking of the bleeding. I found that both ligatures had slipped off. This case brought home to me very forcibly the fact that I can now look back upon cases which I believe I could have materially benefited had I simply transfused. The mere mechanical presence of a physiological salt solution enabled her heart to carry on its action; it has something to contract upon. It is such a simple procedure, too, that no one can object to it on the ground of difficulty in its performance. On the other hand, the objection to the infusion of a salt solution into the connective tissue is that it is not near as efficacious; it necessarily takes some time for this material to be absorbed; and then surely you do not get the mechanical effect from the presence of the liquid in the circulatory system near as well nor as speedily. I would like to know whether any of the other gentlemen have been practising transfusion with any degree of regularity.

DR. PREWITT.—Did the patient get well?

DR. LUTZ.—Yes, sir, she got well, but through no fault of mine.

DR. MOORE.—How long was it after the transfusion before you noticed the pulse improve?

DR. LUTZ.—While she was being transfused.

DR. MOORE.—Dr. Lutz has a most practical idea about that thing, if it is as valuable as he imagines; but the last case that I remember was one in which Dr. Dorsett was present, in which our late colleague, Dr. Mooney, operated for extrauterine pregnancy. The hemorrhage was furious at the time of operation, and the moment the packing had stopped it sufficiently to satisfy both him and Dr. Dorsett, the transfusion was commenced. The patient was pulseless. The transfusion was successfully made, and a flickering return of the radial pulse was perceptible, but she died in a few hours.

DR. JOHN YOUNG BROWN.—The case presented by Dr. Prewitt illustrates the importance of the early exploratory incision. While I do not think there would have been any special danger of the woman dying from the hemorrhage, because it was well walled off, the dangers as presented by the specimen seem to have been in the way of septic infection of the blood mass. From a pathological point of view it looks as if the pregnancy occurred in a tube that had been in a state of chronic inflammation prior to the pregnancy, and we very frequently find this condition. As Dr. Dorsett suggested, there is usually a period of sterility prior to the pregnancy. From the lack of shock and other symptoms when the diagnosis of extrauterine pregnancy was made, it seems probable that the rupture occurred in the folds of the broad ligament and that the blood was well walled off.

DR. DORSETT.—In the absence of any tissue here that is Fallopian tube, I would say that this is either a case of abdominal pregnancy or a case of intraligamentous rupture. Of course cases of extrauterine pregnancy are originally tubal;

those which become abdominal are those in which the fetus escapes from the Fallopian tube into the abdominal cavity or passes through the walls of the tube and is not followed by hemorrhage, or they are cases that escape through the lower wall of the Fallopian tube into the intraligamentous cellular tissue. Dr. Prewitt, of course, was very much handicapped in not having a history of the case and having a chance to make a diagnosis before he started to operate, and from the fact that the patient was in such a condition that he could not make as much of an examination at the time of operating as he might have wished. The pedicle that he tied off I do not think was Fallopian tube or any tissue at all; it was simply blood clot. I wish to say, in regard to the point that Dr. Lutz made about the transfusion, "that it is a very easy matter," that has not been my experience. In some individuals who have lost a considerable quantity of blood the veins are not as prominent as they might be and cannot be found easily. I had an experience of this kind about three months ago in hemorrhage after a laparotomy, in which it was almost impossible to tap the vein; we had to cut through the skin and dissect down some distance before we could tap the vein, and that case taught me a valuable lesson. Since then, in every case where I open the abdomen, if I can possibly do so, particularly if I suspect there will be hemorrhage, I inject into the bowel, after the patient is placed on the operating table, a large quantity of hot normal salt solution; then I am prepared for any hemorrhage or shock that the patient is likely to have. Strange to say, it matters not how much water you put into the bowel; if they are under the influence of chloroform they do not void it when in the Trendelenburg position. When the patient is taken back to bed after the operation, even if the operation lasts only a short time, no water comes from the bowel, showing that it is absorbed. Then if you also give the patient a little strychnia it will help to hold her up; and in this way you avoid the embarrassment of having the assistants cautioning you to hurry up when you have not completed the operation, that the patient is getting in bad condition, that the respiration is getting bad. If you have given strychnia before and injected the water into the bowels you are most likely spared this. Clark and others have advocated giving the patient large quantities of water in the rectum to prevent thirst after laparotomy, and also have them drink quantities of water before the operation.

DR. PREWITT.—Since the operation, in dressing the case, I have removed the packing, passed my fingers into the sac, and convinced myself that this was a case of intraligamentous rupture. On close examination, too, of the specimen, what seemed the Fallopian tube appears to be a long, fibrinous clot.

DR. GEHRUNG.—I have seen cases where a comparatively small hemorrhage seemed to deplete the patient so completely that I thought she would die, and to all appearance she was dead. We had no other apparatus on hand but a number of



hypodermatic syringes, and by means of these we injected normal salt solution. As rapidly as four or five persons could fill them, I plunged them into the tissues until from one hundred to one hundred and fifty punctures had been made and the patient was thoroughly revived. I thought it still advisable to make an intravenous injection for safety's sake, but found it impossible on account of the smallness of the veins.

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*Meeting of November 17, 1898.*

*The President, W. B. DORSETT, M.D., in the Chair.*

DR. H. S. CROSSEN read a paper on

VESICO-VAGINAL OPENING AS A MEANS OF BLADDER DRAINAGE IN PLASTIC WORK ON THE URETHRA.<sup>1</sup>

DR. T. F. PREWITT.—I think the doctor certainly adopted the proper course. In cases where we make a new urethra we are obliged to divert the urine. I recently operated on a boy in whom I made a new urethra, and I made a suprapubic cystotomy so as to drain the bladder; otherwise I should not have had complete union.

DR. DORSETT.—How do you accomplish suprapubic drainage?

DR. PREWITT.—With a siphon; a long tube passing either into a bottle or along the side of the bed.

DR. NEVILLE.—You would not advise that in the case of a female?

DR. PREWITT.—I would in a case of vesico-vaginal fistula where you did not have room to make a vesico-vaginal opening.

DR. DORSETT.—I saw a very pretty operation done by Price at one of the hospitals in Pittsburg during the last meeting of the American Association of Obstetricians and Gynecologists, in which there was a syphilitic ulceration and the anterior wall of the vagina had sloughed away so you could stick the finger under the pubes directly into the bladder; and he did this operation with silkworm gut, and used perforated shot to fasten the sutures on the side, which was a very pretty thing. He claims that these syphilitic lesions heal up very kindly with him, but I think that is contrary to the general experience and belief.

DR. WILLIS HALL.—Did you keep the patient under treatment after the operation?

DR. CROSSEN.—Yes. I got the ulcers healed, except a very small area. The urine seemed to keep that irritated, and there was no further progress toward healing. Possibly it would have been better to have waited longer.

DR. DORSETT.—You made a ventral fixation of the uterus first?

<sup>1</sup> See original article, p. 179.

DR. CROSSEN.—No; that was the second operation. I simply sewed the flap up the first time, and that operation was a failure. That was done without drainage.

DR. DORSETT.—About four weeks ago I did a ventrofixation in a very nervous, hysterical woman, and she has incontinence of urine as a result. I do not know but what if she were rid of her neurotic condition she might retain the urine.

DR. PREWITT.—Is there any irritation of the bladder?

DR. DORSETT.—I do not know. She has had no pain. She does not know when she is going to pass the urine; or, if she has desire to do so, before she can get the bedpan under her it has passed. I never had such a case. As I said before, she is neurotic, and it is probable that has a great deal to do with it.

DR. GEHRUNG.—It is possible that the uterus has been pressed against the bladder sufficiently to cause it to overcome the sphincter.

DR. CROSSEN presented a specimen of

#### ANENCEPHALUS,

a fetus with the cranial bones and the brain practically absent, the brain being represented by an irregular, soft, vascular



FIG. 1.—Anencephalus—front view.



FIG. 2.—Anencephalus—side view.

mass covering the base of the skull (see photograph). The mother was a colored woman 25 years old and apparently

healthy. She gave birth to a healthy child seven years ago. No abortions or miscarriages, no evidence of syphilis. The fetus was about two weeks premature and lived one hour and ten minutes. The heart pulsation continued during the time mentioned, but there was no natural respiration—only two or three feeble gasps. Artificial respiration was kept up as long as there was any heart beat.

It was a head presentation, position O. L. A. The deformity of the head made it difficult to determine the presentation in the examination during pregnancy. My assistant thought it was a breech presentation, because the hard, rounded vertex could not be felt in the lower part of the uterus. After a careful examination I noted on the history that the head was down but that it was very small. I thought that the soft mass felt where the hard vertex should be was probably the placenta interposed between the examining finger and the presenting part.

## TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING,  
HELD AT MEMPHIS, DECEMBER 6, 7, AND 8, 1898.

*The President, RICHARD DOUGLAS, M.D., of Nashville,  
Tenn., in the Chair.*

DR. W. D. HAGGARD, JR., of Nashville, Tenn., read a paper entitled

### A PLEA FOR THE MORE CORRECT APPLICATION OF THE EMMET METHODS IN PLASTIC SURGERY.

The essayist feelingly referred to the pioneer work of Sims, and said that the brilliant achievements in abdominal surgery have so far outshone the humbler plastic operations that their perfection has been very much impaired. The apothegm that "whenever anything is as good as it can be, it cannot get better" is particularly applicable to the work of the early school of gynecologists. It is equally axiomatic that when progress approximates perfection it ceases to improve and decadence ensues.

Plastic surgery of the vaginal walls and cervix uteri of the present is a polyglot of many methods, widely differing in principle and hopelessly diverging in practice. It is usually the *bête-noire* of the practitioner, the unfruitful field of the general surgeon, and the *négligée* work of the gynecologist. It is not that we love it less, be it said, but that we love major work better.

The extension of the method of Sims in fistula to injuries of the adjacent soft parts was made by Emmet. The essayist traced the evolution and perfection of the operation on the cervix.

Dr. Haggard described the mechanics of the production of rectocele associated with the common transverse tear of the posterior vaginal wall involving the pelvic fascia, which is the essential pathology in this injury. The rational correction of this complex condition then would be, not to sew the labia together, which is the popular procedure in one class of operations, nor to denude an arbitrary area of fanciful shape on the rectocele and bring the edges of the raw patch together, after the fashion of another class. It would rather be, in the language of Emmet, "to catch up the retracted pelvic fascia at such a point and in such a manner as to take in the slack," as it were, of the fascia throughout the pelvis. By this procedure the displaced posterior vaginal wall is certainly lifted up and drawn forward in contact with the vesico-vaginal septum. As the steps of the operation advance, the displaced anus is lifted upward and forward, the everted tissues at the vaginal outlet gradually rolled in, and the separated levator ani muscles brought together. He accentuated the essential features in detail. The classical operation for the complex tear of the perineum is more amenable to pictorial description, and he believes it is more generally understood. He minutely depicted it.

In every branch of art there is a troop of imitators who follow so closely the hall-marks of the original that the specious can scarcely be distinguished from the genuine. So closely are mannerisms copied in literature, art, sculpture, and the drama that the imitators create a distinctive school. This accuracy of duplication is rendered possible by the faithful and scrutinizing study of the original pattern.

The unlimited opportunities for the study of models in the arts are obviously impracticable in plastic surgery. We cannot all have the privilege of seeing Emmet, although a distinguished Fellow of this Association says that every one who aspires to do this work ought to. Dr. Haggard regrets that many of Dr. Emmet's pupils do not or cannot copy his methods, and he does not hesitate to say that those who do conscientiously strive to imitate him fall far short in their efforts, but they have at least the satisfaction of having a correct conception of the highest ideals in surgery.

THE TREATMENT OF COMPLETE RUPTURE OF THE PERINEUM  
BY DISSECTING OUT THE SPHINCTER MUSCLE, AND ITS  
DIRECT UNION BY BURIED SUTURES.

DR. HOWARD A. KELLY, Baltimore, Md.—The results of the best methods of the treatment of complete tears of the perineum are not entirely satisfactory in a large percentage of cases. The control over liquid motions and flatus is, as a rule, not secured immediately, and it is usually necessary to encourage the patient by telling her that she "will have to



learn to control the muscle in the course of time." Such a control, more or less perfect, is gained in the course of several months. This defect in our present procedures is due to a faulty approximation of the sphincter ends, which lie buried in a pit and are therefore difficult to bring into accurate firm apposition by sutures embracing a considerable quantity of tissue surrounding the sphincter ends. He proposes, therefore, the deliberate dissection and freeing of the sphincter ends, drawing them out about one and a half centimetres from the tissues, cutting off the scarred ends, and effecting a direct union of the freshened ends by two or three buried catgut sutures.

He was led to do this operation by his experience in a case which had been operated upon six times with a result which, judged by superficial appearances, was perfect, and yet the patient had no control over her bowel functions. He made a semilunar incision around the anterior periphery of the anus, and found the right sphincter end buried in scar tissue in the median line, while that of the left side was ectopic and attached out under the ischial tuberosity. The sphincter ends were united directly by buried catgut sutures and the skin wound closed, and union took place per primam. In addition to these buried catgut sutures a splinting suture of silkworm gut is passed through the middle of the sphincter near the edges of the wound, and on up through the septum, splinting the ends together and taking the tension off the catgut. He has since taken the hint given by this case and adopted a similar procedure in six cases of complete tear of the perineum due to confinement. Two additional cases were operated upon by Dr. W. W. Russell and one by Dr. Ramsay. In each instance there was a surprising difference between the new and older methods, noted at once in the earlier stages of the convalescence, and the patient was immediately conscious of perfect control of her functions. The bowels should never be locked up.

Great care must be taken not to leave any dead spaces in closing the remainder of the wound in the usual way, in order to avoid all risk of infecting the buried sutures.

He only recommends this operation to those who possess considerable skill in doing plastic operations and in securing a snug, accurate adaptation of the parts.

DR. LEWIS S. McMURTRY, of Louisville, Ky., read a paper on

#### THE TREATMENT OF CANCER OF THE UTERUS.

He said that the treatment of uterine cancer had not shared proportionately in the great advance of modern pelvic surgery. While other diseases which were long the opprobria of medical and surgical science and art had been made amenable to surgical treatment, the treatment of cancer of the uterus was practically where it was twenty years ago. Cancer of the

uterus was a very common disease. Women were more subject to cancer than men, and in quite one-third of all cases of cancer in women the uterus was the seat of the disease. The disease occurred, as a rule, between the ages of 30 and 50, attaining its maximum prevalence at the menopause. It was rare in unmarried and sterile women, and was most common with mothers of large families. Race and environment have much to do with its development. It has been the experience of the essayist that the disease is proportionately rare in the negro race. From a careful statistical study Billings declares that cancer is slowly but steadily on the increase, and that its greatest prevalence is in nations which have attained the highest state of civilization. In 1893 London alone lost 3,412 of her population from this disease, a percentage of 3.73 of the total death rate for the year. Cancer of the corpus uteri is rare in comparison with the common exhibition of the disease in the cervix, but not so uncommon as was formerly understood. Cancer of the cervix originates (1) in the squamous epithelium of the vaginal portion of the cervix, (2) in the cylindrical epithelium of the cervical mucosa, and (3) in the epithelial lining of the cervical glands. Cancer of the body of the uterus originates in the epithelial structures of the endometrium.

The treatment of uterine cancer consists in a variety of operative procedures leading up to the most recent operation of combined abdominal and vaginal extirpation. The names of Verneuil, Carl Braun, Schröder, Pawlik, Koeberlé, and Byrne are associated with high amputation of the cervix with écraseur, cautery, and knife. High amputation, as practised by Schröder, attained the greatest favor and maintained its position over hysterectomy until 1886. Prior to this time hysterectomy had such a high mortality (15 per cent) that high amputation deserved preference. In 1886 the operation of total vaginal extirpation was revived by Martin, Leopold, and Olshausen. Since that time this operation has been very generally adopted, and is to-day the accepted treatment for the radical cure of cancer limited to the uterus itself. With the modern perfected technique the mortality of this operation is reduced to about 4 per cent.

The doctor referred to the statistics of vaginal hysterectomy as given by Pozzi in the third edition of his treatise on gynecology, an analysis of which does not strengthen or inspire confidence in the ultimate results of this procedure. He said that claims are being made for the permanent cure of uterine cancer by hysterectomy which could not be realized. Of all the cases of uterine cancer which apply for treatment, only a small proportion are within the scope of a clean extirpation by vaginal hysterectomy. The large number of cases in which the disease recurs at the site of operation within a few weeks demonstrates that the operation is in most cases simply a resection, leaving behind sufficient disease for continued activity. His personal experience with this operation has been discour-

aging. Vaginal hysterectomy for cancer has never been a favored operation with him. During the past year he has done the operation in five cases, which were selected as most favorable for permanent cure. In all the disease was discovered early, and, so far as macroscopic evidence could show, it was limited to the uterus itself. The organ was normally mobile. Of these five cases treated by vaginal hysterectomy, two had recurrence, one in the bladder, the other in the vaginal fornix at the cicatrix, within five months after operation. These were selected cases in which the disease was early recognized; the patients were under 50 years of age and well nourished. The operation was done with a view of going far beyond the region of probable infiltration and removing the appendages with the uterus. Based on his own previous experience and that of other operators, it is doubtful if one of the three remaining cases will be living at the end of three years from the time of operation.

The histological structure of the uterus and adjacent structures is exceptionally favorable for disseminating this disease. The rich lymphatic distribution here is an active means of infection, but the studies of Cullen show that the activity of lymphatic invasion has been exaggerated and that the common mode of infection is along continuous structures. Extension is most rapid around the vaginal vault, forward and downward under the bladder, and in the base of the broad ligaments. The common invasion of the vagina by implantation about the cancerous cervix has suggested to Werder the method he has practised of total excision of the uterus and vagina by suprapubic operation.

In conclusion, Dr. McMurtry considered in detail the choice of operation for the several classes of cases of carcinoma of the uterus which are presented to the surgeon for treatment. For advanced cases, where the entire field of evident invasion cannot be removed, he advocated thorough curettage, scraping away necrosed tissue, emptying obstructed pus accumulations, washing out débris, and establishing drainage and antisepsis. Such local treatment will reduce septic intoxication, prolong life, and promote comfort. All operations for radical cure should be limited to cases in which the disease is recognized sufficiently early for thorough removal of invaded structures. This will be best accomplished in the majority of cases by abdominal section and removal of uterus from above, including liberal portions of adjacent structures, especially the upper portion of the vagina, where implantation from the cervix is so often found. While liberal excision of suspicious areas of tissue should be done, it will rarely be found necessary to remove the subperitoneal lymphatic glands, since their enlargement has often been found inflammatory in character instead of cancerous. The field of vaginal hysterectomy should be limited to the few cases of early diagnosis in which operation can be done before deep extension of the disease. Efforts for prophylaxis should be most diligent and should be of universal

application. All ulcerative and cicatricial lacerations of the cervix should be repaired as a prophylactic measure.

DR. WILLIAM L. RODMAN, of Louisville, asked the members to give their experience relative to the frequency of cancer in the black and the white races. He was rather surprised to hear of the infrequency of the disease in the negro woman. According to the last census statistics of Billings, cancer of the uterus is more common at all ages in the black than in the white race. This is also the experience of Matas, who has examined the records at the Charity Hospital in New Orleans. An examination of all deaths recorded by the Health Department of Louisville for the past thirty years corroborated the same view.

DR. ERNEST S. LEWIS, of New Orleans, stated that while he had not observed a very marked difference in the relative immunity of negro women to cancer of the uterus, still, if his experience was not at fault, he thought, owing to their uncleanness, their mode of living, and to the more frequent accidents to which they are subject during labor, they are particularly prone to cancer of the uterus. With regard to the results of all operations for cancer of the uterus, he indorsed everything Dr. McMurtry had said. He could only recall one case of vaginal hysterectomy for cancer that lived for eight years, after which the disease returned and the patient finally died. The disease is so liable to return that he considered any operation as palliative, and he believed that would be the result of the abdominal operation advocated by Dr. McMurtry, particularly in advanced cases; and if cases are met with in the incipency of the disease, in his opinion as much could be accomplished by the vaginal as by the abdominal operation.

DR. VIRGIL O. HARDON, of Atlanta, said during his seven years' connection with the Grady Hospital he had reason to believe that cancer of the uterus was more frequent in negro women than in white women. He had been led by his experience in the treatment of uterine cancer to the same conclusion as that reached by the essayist, except he had been led to go further. He had operated for cancer of the womb by vaginal extirpation, by the abdominal method, and by the combined method, and he had never yet operated upon a case where recurrence did not take place sooner or later, and for this reason he had lost all confidence in operative measures as a means of effecting a permanent cure. However, he had no doubt, on theoretical grounds, that if cases are seen sufficiently early a permanent cure might be effected by surgical interference.

DR. HOWARD A. KELLY, of Baltimore, remarked that he was astounded at the trend the discussion had taken, because he had seen dozens of cases of cancer of the uterus that had remained well for a number of years after having undergone surgical intervention, removing the uterus either by vagina or by the abdomen. He found carcinoma of the uterus as frequently in negroes as in white women.

DR. J. WESLEY BOVÉE, of Washington, D. C., said that his



experience in the radical treatment of cancer of the uterus had been more satisfactory than what he had been hearing to-day. He knew of a good many cases upon which he had operated that had gone on for three years or more without a recurrence of the disease. He had done three operations after the manner described by Werder in *THE AMERICAN JOURNAL OF OBSTETRICS* last winter, and he was much pleased. In each case he adopted the abdominal rather than the vaginal route, believing a more radical operation could be performed by this method. He had great hopes for the future treatment of cancer of the uterus by complete abdominal hysterectomy undertaken early.

DR. WILLIAM L. ROBINSON, of Danville, said that when the parts have become infected beyond the uterus, no dissection, however extensive, would ever remove the cause. When the disease has extended beyond the uterus, he believed it was beyond the power of any surgeon to thoroughly remove it. Therefore, unless an operation be done very early, he would not advise the removal of the uterus.

DR. W. E. B. DAVIS was profoundly impressed with the position taken by Dr. Lewis as to the ultimate outcome of cases of cancer of the uterus, believing his position is correct. There is no man in America who has had a larger experience in the treatment of cancer of the uterus than Dr. Lewis, of New Orleans, and the profession were familiar with his great skill as a surgeon, hence his experience regarding uterine cancer was certainly valuable.

DR. McMURTRY, in closing the discussion, said he could not indorse the view that Dr. Kelly takes with reference to the ultimate results of the operative treatment of cancer of the uterus. He knew that Kelly's work in this direction has been extensive and that his reports are sincere and reliable, but there are a great many surgeons working in the same line, who have done thorough, faithful, skilful work in the radical treatment of uterine cancer, who doubt the future confirmation of Dr. Kelly's views.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., contributed a paper on

#### THE CONSERVATIVE TREATMENT OF THE DISEASED OVARY.

The difference between the radical and conservative treatment of the diseased ovary is somewhat difficult to define, inasmuch as the most radical treatment under some circumstances is really the most conservative, while, in other cases, to conserve the best interests of some particular diseased ovary requires the most radical surgery.

In the early part of the present decade quite a conservative wavelet swept over the country, and considerable harm was done to pelvic and abdominal surgery in the mild and gentle name of conservatism. Incomplete conservative operations were done, some of which had to be completed later on by radical operations. Some of the men who claimed to be the

most conservative, and attracted the timid doctors and frightened patients, were actually removing more ovaries and tubes than many of their so-called radical friends. Much credit has been claimed for saving a part or the whole of one ovary and tube, when only a simple catarrhal salpingitis existed, by an operator posing before the profession and community as a conservative, when the surgeon designated a dangerous radical, to be avoided, would actually not have operated at all and would probably have cured his patient by other means.

In some instances real, genuine, successful, and beneficial conservatism was practised with lasting beneficial results, but not always from the highest and purest motives. And, again, it has been charged that actual radicalism has successfully masqueraded in the name and guise of conservatism to the injury of the trusting patient and the discredit of good surgery, but let us hope these instances have been few and far between.

With the wonderful improvements in abdominal surgery within this generation more and more has been learned in regard to the toleration of the peritoneum. Former fears of opening and manipulating within its cavity have well-nigh disappeared, so that now the chief objection in the minds of many to an abdominal section has come to be not so much from what is done within the abdominal cavity, but as to how it is to be closed when the operation is finished, so as to prevent the occurrence of ventral hernia. Thomas Addis Emmet said, two decades ago, that the danger in abdominal surgery was not so much from what was taken out as from that which was introduced into it during an operation. But nowadays, instead of spending valuable time in sponging out every drop of blood or other fluids, or putting in a drainage tube, we frequently flood the cavity with quarts of the normal salt solution, thus diluting and spreading the residual fluids over a greater area of absorbing surface, warming up the somewhat cooled abdominal viscera, floating the intestines away from any overlooked raw surfaces, and at the same time performing an actual transfusion.

So much has been learned by accumulating experience, as the domain of the gynecologist has undergone so much "expansion"—to borrow a term which has acquired a new significance in the recent history of our country—that real conservatism is gradually gaining ground over real radicalism, to such an extent that he who presents ovaries and tubes or a fibroid uterus in a modern, up-to-date medical society has to state very good reasons why he sacrificed these important organs in their entirety to escape criticism and possibly censure.

Since Battey suggested normal ovariectomy for the relief of many of the uncontrollable nervous and painful symptoms accompanying the menstrual molimen in 1872, and Lawson Tait in the same year the removal of the uterine appendages for chronic inflammatory and suppurative diseases of those organs, and Hegar, in Germany, about the same time recommended the complete removal of the ovaries and tubes for arresting the

growth and hemorrhage of fibroid tumors of the uterus, many of these important and special organs of sex in the female have been sacrificed which accumulating experience and the improvements in abdominal surgery now make it possible to save. For a score of years Battey, Hegar, and Tait set the pace in three of the greatest countries of the globe. Radical operations were the rule. So great was the fear of opening the abdomen that, when it had been once opened for the removal of an ovarian tumor and the appendages on one side, the other ovary was too often removed also if it showed any signs of being even slightly diseased, and in not a few instances the only reason given for its sacrifice was that it might some day become diseased and had therefore better come out while the opportunity afforded without increasing materially the danger or expense of the patient. In this field he was proud and happy to say that sacrificial surgery is gradually giving way to more conservative and humane methods. He believed there is a maxim in general surgery in favor of saving every inch of the human body possible, and another that it requires a higher order of skill to save a mutilated or diseased member than it does to cut it off or to cut it out.

With his present experience in abdominal surgery he was free to confess that he can now save ovaries and tubes which he formerly thought it necessary to totally remove. The increasing skill of abdominal surgeons and their accumulating experience in actual conservative work go to show that surgeons are approaching nearer to that true conservatism which is the offspring of increased skill and experience, and is not that kind of clap-trap conservatism which has been a by-play to the galleries and publicly used as a means of attracting practice and increasing profits. It is just as true in abdominal surgery, if not more so, that it requires a higher order of skill and greater experience to save an organ, or part of an organ, than it does to remove it. When the conditions are favorable, especially is it important to save a portion of one ovary where the other has been removed on account of a tumor, an abscess, or for any other cause. The disagreeable symptoms accompanying the artificial and premature change of life are often stormy and protracted, in some rare instances threatening, if not resulting, in actual insanity. They are happily prevented by saving one or a portion of one ovary; menstruation is then not interrupted, and the sexual and other feelings of the patient undergo none of those sudden and peculiar revulsions which unfortunately sometimes follow total removal of both ovaries and tubes.

Goodell, of Philadelphia, and Polk, of New York, are among the pioneers in this work, but at the time of their first emphatic utterances the profession was not ready to accept their teachings or to believe in their practice. Some of their over-zealous, too enthusiastic, and less skilful followers did actual harm by incomplete and badly executed operations, requiring the most radical kind of sacrificial surgery occasionally to save lives improperly jeopardized through a mistaken conception of what conservatism really is.

Dr. A. Palmer Dudley, of New York, reported a brilliant series of one hundred and three conservative operations upon the uterine appendages without a death, at the last meeting of the American Gynecological Society. His paper was very favorably discussed by Drs. Kelly, Gill Wylie, Mann, and others who had done similar and other conservative work within the peritoneal cavity. Dr. Dudley does not hesitate to cut away the diseased portion of a tube and stitch the healthy end to the healthy ovary, and reported that good results followed. In other cases the remaining portion of the tube was irrigated with an antiseptic fluid and stitched to the ovary; and still other cases, where one ovary and tube have been removed on account of the presence of a tumor or an abscess, and the other ovary and tube have been found somewhat involved, the diseased portions have been resected and the healthy portions stitched together, with perfect recovery. Pregnancy subsequently occurred in several such cases. Polk and Pryor, of New York, and Kelly, of Baltimore, have reported similar cases and similar results. As a result of the increasing conservative treatment of the diseased ovary, many patients may be saved from the premature occurrence of the menopause with all that it implies. Many patients would consent to operative procedures, rendered advisable by their unfortunate conditions, if they could be assured that they would not be unsexed, as they call it, by the operation. While menstruation is looked upon by most women as a curse, or a great inconvenience at least, very few welcome its disappearance with any degree of pleasure. It is believed to be the beginning of the old age which is so much dreaded; and while they may not always desire more children, the feeling that maternity has been made impossible, and that they have been made so different from other women by the complete removal of both ovaries and tubes, carries with it an indescribable dread and often an indefinable feeling of abhorrence.

Of course, what our women patients all want is restored health, and if the sacrifice of their organs of sex are necessary to the accomplishment of this much-desired object, they will in a large majority of cases consent to follow the advice of their trusted medical and surgical advisers. If increasing experience in the abdominal cavity and accumulation of evidence continues to favor more conservative and less sacrificial operative work, he was sure that the deep debt of gratitude now felt toward abdominal surgeons by suffering women will be tenfold increased and intensified.

DR. RICHARD DOUGLAS, of Nashville, Tenn., delivered the President's address, on

#### ACUTE GENERAL PERITONITIS.<sup>1</sup>

#### THE RARITY OF OVARIAN CYSTS IN NEGRESSES.

DR. I. S. STONE, of Washington, D. C., read a paper on this subject, in which he said that after several years' experience in

<sup>1</sup> See original article, p. 145.



a hospital for women where a large number of negroes are annually treated for gynecological diseases, and where cases of uterine myomata are frequent, he had noticed the extreme rarity of ovarian neoplasms, and especially of the multilocular variety. He addressed letters to all the members of the Association and to several other prominent surgeons elsewhere, whose opinions added weight to the evidence furnished. In this circular letter he inquired if they had operated for multilocular ovarian cysts in negroes, and, if so, to state the exact color of the patient. Of the large number who replied to his inquiry, there was almost universal acquiescence in the position taken by him, save from one important medical centre, the city of New Orleans.

Dr. Stone gave overwhelming testimony favoring the view that ovarian tumors are exceedingly rare in the negro race. From all sources outside the city of New Orleans, he finds, by a large correspondence, but fifteen cases where dark-skinned negroes were operated upon for ovarian tumors, multilocular or unilocular; he has the assurance also that in fully one-half of these the women were not full-blooded negroes; and, finally, in some of the black women the cysts were unilocular. He made a careful distinction between multilocular and unilocular cysts, because there can be no doubt about a diagnosis at the time of operation when a multilocular cyst is found. It is otherwise with parovarian cysts, or those of the broad ligament, which are perhaps classified as ovarian and their removal called ovariectomy in hospital reports or operation lists, when, strictly speaking, they are not ovarian tumors. The essayist has frequently operated for dermoid, papillomatous, parovarian, and broad-ligament cysts in negroes (although most of these in mixed cases), but has not seen a multilocular ovarian cyst.

DR. W. L. ROBINSON, of Danville, Va., presented a

CLINICAL REPORT ON THE USE OF ANTISTREPTOCOCCIC SERUM  
IN SEVEN CASES OF PUERPERAL SEPTICEMIA, FOUR OF  
POST-OPERATIVE SEPSIS, THREE OF SEPTIC CELLU-  
LITIS, AND TWO OF ERYSIPELAS.

His experience in the use of antistreptococcic serum in puerperal fever, septic cellulitis, post-operative sepsis, and erysipelas comprises seven cases of puerperal fever treated by him, with high fever, rapid weak pulse, characteristic breath, chilliness, nausea and insomnia, pelvic tenderness, with scanty, fetid lochia. From twelve to twenty cubic centimetres of the serum were injected after the usual treatment had failed—namely, including irrigations, both intrauterine and vaginal, sealing abrasions of the cervix and perineum, saline injections, purgatives, stimulants, etc.—with prompt improvement in the general condition, rapid fall of temperature, lowering of pulse rate, and complete recovery. The effect was manifest in from eight to sixteen hours in the majority of cases.

In the three post-operative cases of sepsis, seemingly hopeless, all usual treatment failing, the serum in twelve hours transformed every symptom of high fever, chilliness, rapid weak pulse, diarrhea, etc., into a hopeful condition, resulting in rapid recovery. Pain subsided in twelve hours; fever in eight hours; diarrhea in forty-eight hours. The first case was a vaginal hysterectomy; the second was operated on for the removal of pus tubes; and the third was a vaginal hysterectomy.

The three cases of septic cellulitis consisted of suppurative cellulitis of the hand, commencing in the finger, one of injury from a rusty nail, and the other from the spur of a cock. Both had been treated by general alterative tonics and locally with improved antiseptic measures, but the disease steadily progressed, involving new tissue, until the serum was used, when the progress of the disease was promptly arrested in both cases and the hands saved. A third case was a gunshot wound of the ankle, with marked septic prostration, chills, diarrhea, etc., which was dissipated promptly by the use of the serum, so far as fever and general septic symptoms were concerned.

Two cases of erysipelas. One, 16 years of age, in which an abscess developed following the extraction of a tooth, discharging at two points on the neck. Redness and swelling covered one-half of the face, nose, and head. Temperature  $104.4^{\circ}$ , pulse 140; delirium, vomiting, chilliness, etc. Ten cubic centimetres of the serum were injected at 9 P.M., which resulted in the decline of temperature to  $100^{\circ}$ . The next morning there was complete arrest of all symptoms, followed by prompt recovery. The second case was one of nephritis with puffed eyelids and face; erysipelas of the thigh; a hard, red, shiny swelling; delirium. Two injections of the serum were used in twenty-four hours, and at the end of thirty-six hours the patient was convalescent.

DR. R. R. KIME, of Atlanta, Ga., reported removing an ovarian cyst containing five gallons of fluid from a small, slender girl of 17 years of age. The cyst was tied off at three points from the omentum, the adhesions to the parietal peritoneum separated, and at one point a half-pint of pus was found, which accounted for elevation of temperature and acceleration of pulse previous to the operation. The patient developed pneumonia on the third day after the operation, but recovered. The tumor was of rapid growth and was first noticed ten months previously. There was a perceptible increase in its size each day previous to the operation.

He also reported a case of dermoid cyst of the right ovary complicating premature delivery in March. Suppuration of the cyst followed, accompanied with chills and fever, pregnancy occurring again in May. Patient refused surgical intervention until the following September, when vaginal incision and drainage was performed as a life-saving measure. Patient miscarried eight days afterward; the placenta was removed with instruments, and the uterus tamponed to check hemorrhage; patient unconscious and pulseless, but soon rallied, and

recovered without infection resulting from miscarriage. Tubular drainage of the cyst was kept up until the cyst cavity was filled, and the patient got well. The cyst contained three pints of cheesy, purulent, fetid material, with some locks of hair.

CELIOTOMY IN THE TREATMENT OF THE INCARCERATED  
PREGNANT UTERUS WHEN IRREDUCIBLE.

DR. HENRY D. FRY, of Washington, D. C.—The retro-displaced pregnant uterus becomes imprisoned by the projecting promontory of the sacrum, and, unless relieved artificially or naturally, abortion results or serious pressure symptoms develop. Abortion, induced or natural, is more serious than under other conditions, because the angle of flexion prevents complete evacuation and drainage of the uterine cavity.

Fortunately, in the majority of these cases, replacement takes place spontaneously about the end of the third month of gestation. In the few cases which do not correct themselves manual reposition is generally successful, especially when employed under anesthesia. In the very small proportion of cases left, induced abortion and vaginal hysterectomy are recommended as the last resorts of obstetric art. Believing the first never to be justifiable treatment for these cases, and the latter only when destructive inflammatory changes have occurred, the writer proposes a new method of dealing with the complication. An incarcerated pregnant uterus which is irreducible by every effort of manipulation from below becomes readily restored to its normal position if manipulated from above after celiotomy.

On April 24, 1896, the writer operated upon a case successfully. The abdomen was opened, the fundus lifted out from beneath the sacral promontory, and the gravid womb placed in normal position. To prevent recurrence of displacement after childbirth and the possibility of a similar complication in case of subsequent pregnancy, the uterus was attached to the abdominal wall by two silk sutures. The case recovered, passed through a normal pregnancy, and was delivered at term without any difficulty. The uterus remained in normal position after the puerperium had passed.

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## TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

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*Meeting of November 2, 1898.*

*The President, C. J. CULLINGWORTH, M.D., in the Chair.*

MR. BLAND SUTTON read two papers on

### TUBAL PREGNANCY.

The first paper consisted of the record of a case of tubo-abdominal pregnancy in which a woman, 24 years of age, con-

ceived in her left Fallopian tube and the pregnancy went to term. The fetus escaped from the amnion, and at the operation was alive and disporting among the intestines, merely tethered by the umbilical cord. The placenta was removed without difficulty and with a very trifling loss of blood. The mother recovered, but the child survived extraction only three hours.

The second paper consisted of criticisms and deductions based on a report of a specimen presented to the Society by Mr. Alban Doran in May, 1898, purporting to be "hemorrhage from the Fallopian tube without evidence of tubal pregnancy." Mr. Sutton's object was to prove that the specimen was an excellent example of "complete tubal abortion." This contention was supported by a re-examination of the specimen and illustrated by additional cases. Criticism was also extended to some other records recently published in the Society's Transactions.

MR. ALBAN DORAN wished it to be remembered that his communication was designedly entitled "Hemorrhage from the Fallopian Tube *without Evidence* of Tubal Gestation," and not "*independent* of tubal gestation." In his paper he further declared, "I am very suspicious of alleged cases of hemorrhage from the tube into the peritoneum not due to tubal gestation." Mr. Doran would have been much interested to see a demonstration of chorionic villi found in the clot in his specimen, but Mr. Sutton and Mr. Shattock had failed to find any. Walther had also warned us against taking almost structureless fibrinous deposits for villi. There was no reason why clots from the tube not associated with tubal gestation and abortion should not be smooth and elliptical. As chorionic villi had not been found, in his opinion the case remained not proved.

DR. MCCANN said that the case which was the subject of discussion came under his care. She had suffered for some weeks from constant and copious discharge of bright-red blood, which, in his experience, was quite exceptional. In another case the dilated tube contained an ovoid blood clot with a small central cavity. A careful examination of the clot and the tubal wall failed to detect chorionic villi. This case was probably one of hematosalpinx not caused by tubal pregnancy.

DR. EDEN said a good deal of care was necessary in examining masses of blood clot for chorionic villi. He had known fibrin rings and sections of the tubal plicæ exhibited as chorionic villi. If a careful search had been made in Mr. Doran's specimen and no villi found, he thought it pretty certain that it was not a mole.

DR. AMAND ROUTH said Mr. Bland Sutton's paper had brought out clearly the fact that after tubal rupture the Fallopian tube might recover itself and look normal in a few days, and after tubal abortion had been proved to have resumed its normal size and appearance even in a few hours.

THE PRESIDENT was glad that Mr. Sutton had called attention to the question as to what happened in cases of pelvic



hematocele from incomplete tubal abortion where the tubal mole remained in the tube after the hematocele had undergone absorption. It was a question on which more light was needed. He himself was disposed to agree with the author of the papers that an unremoved or unexpelled tubal mole was apt to cause trouble, and was not sure that it was not a source of serious danger to the patient. He had seen a case in which the mole-containing tube had become twisted on its axis, with results similar to those which occur when the pedicle of a small ovarian cyst becomes twisted. He had also seen a case where there was reason to believe that the mole had become septic and set up peritonitis.

MR. BLAND SUTTON, in reply, contended that it was idle to deny that the clot in question was the product of tubal pregnancy. A tubal mole with such definite characters indicated that it was the result of tubal pregnancy as clearly as a potato was known to be the product of *Solanum tuberosum*. The difficulty of detecting the villi was probably due to the fact that the mole had been extruded from the tube for many weeks. In reply to Mr. Targett, he observed that in some cases of tubal abortion villi were demonstrable in the tube; in other cases the tubal mucous membrane was quite smooth.

The following specimens were exhibited: MR. ALBAN DORAN: 1. Fibroma of broad ligament weighing forty-four pounds eight ounces successfully removed from a woman aged 28. 2. Sarcoma of both ovaries. DR. TATE: Sloughing fibromyoma of uterus occurring twenty years after the menopause. MR. BUTLER SMYTHE: A microscopic section of chorionic villi from case of tubal gestation. DR. AMAND ROUTH: Uterine appendages showing hematosalpinx. DR. CULLINGWORTH: Edematous subperitoneal fibromyoma removed by hysterectomy.

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*Meeting of January 4, 1899.*

*The President, C. J. CULLINGWORTH, M.D., in the Chair.*

#### ECTOPIC GESTATION.

DR. ARCHIBALD DONALD read a paper on a case of ectopic gestation at the seventh month in which the fetus was extracted by vaginal incision. The patient, age 33, was admitted to St. Mary's Hospital, Manchester, on July 20, 1898. She had been married about a year and had been regular till January 20. In February she had a slight discharge, which in March existed continuously for three weeks. On admission the abdomen was uniformly enlarged by a tumor which reached about four inches above the umbilicus. A loud souffle was distinctly heard. The cervix was close to the pubes, and the uterus could be mapped out bimanually in front and to the left, and seemed about the size of a two months' pregnant uterus.

The posterior vaginal fornix was bulged by a hard mass which almost filled the brim; this mass was the fetal head, in which the sutures could be felt. On August 18, 1898, abdominal section was performed and the placenta was exposed. The wound was therefore temporarily covered and the child delivered through a posterior vaginal incision by cranioclasm, and the sac packed from the vagina with iodoform gauze. Alarming hemorrhage occurred when the gauze was removed on the fourth day. The separation of the placenta occupied some weeks, but the patient made a good recovery and was discharged strong and well on November 12. The author described the position of the fetus in the broad ligament and discussed the advantages of the vaginal route.

DR. GALABIN said that in intraligamentous pregnancy the vaginal methods of operating, when practicable, secured several advantages, obviating the necessity of stitching the sac to the abdominal wall, and any temporary sinus caused little inconvenience. In several cases of extrauterine gestation of shorter duration than seven months he had adopted the plan followed by Dr. Donald of making an exploratory abdominal section, and, if the case proved to be one of intraligamentous pregnancy unruptured or if the pelvis was completely shut off by adhesions, opening the sac per vaginam. The advantage of abdominal exploration was shown in one case where the sac had been ruptured and a large quantity of blood was effused into the peritoneal cavity. He had removed the placenta in one case through the vaginal incision three days after the operation and the patient rapidly convalesced.

THE PRESIDENT said that Dr. Donald could already lay claim to be considered a pioneer in the treatment of early ectopic gestation by operation through the vagina, and he had now brought before the Society a case of advanced ectopic gestation treated by the same method. Dr. Herman had collected several instances in which, in the years gone by, an extrauterine fetus had been extracted through an opening in the vaginal roof; but Dr. Donald, by opening the abdomen, had completed and made certain the diagnosis and had thus made himself master of the situation. He (the President) asked if any opinion had been formed as to the source of the hemorrhage.

DR. DONALD, in reply, said that Dr. Walls, who was responsible for the after-treatment of the case, believed that the hemorrhage came from a placental vessel. Though he had not discussed in his paper early tubal pregnancy, he (Dr. Donald) expressed the opinion that the vaginal incision was safer than the abdominal in early cases—*i.e.*, up to the third month.

#### VULVAR DISCHARGES IN CHILDREN.

DR. DRUMMOND ROBINSON gave the results of his investigation of fifty cases of so-called vulvitis in children. The condition was found to be most common in children under 5,

common between 5 and 10, and uncommon over 10 years of age. In forty one of the cases (seventy-six per cent) the pus cells of the discharges contained cocci that presented characters which, as far as is known, are peculiar to the gonococcus of Neisser. The contagious character of the discharge was illustrated by several cases. The chief symptoms were painful micturition and pruritus vulvæ; occasional complications were ophthalmia, peritonitis, and arthritis. In most cases the inflammation appeared to be superficial to the hymen. Dr. Robinson expressed the opinion that the majority of cases of vulvitis in children were probably gonorrheal in origin.

DR. BOXALL said that it seemed to him remarkable that if the whole of the forty-one cases were to be regarded as gonorrheal, only one showed evidence of conjunctivitis.

DR. SNELL said that he had seen several cases of vulvitis in children occurring in families where in all probability gonorrheal infection was impossible. The subjects were usually weakly, but the complaint was easily and quickly cured.

DR. A. ROUTH thought that, though at present these diplococci were indistinguishable from gonococci, it would be found that they were not really identical. He thought that vaginitis might be caused by infection from the vulva during incautious examinations.

THE PRESIDENT said that Dr. Robinson's paper was important from the scientific and from the practical medico-legal aspects. He asked whether by culture experiments Dr. Robinson had confirmed the diagnosis. He called attention to a paper published in 1859 by the late Sir W. Wilde on some medico-legal aspects of purulent discharge in children. In Dr. Robinson's cases pain on micturition was recorded as a common symptom; might not this be due to the inflamed state of the vulva and not to urethritis, which was not an essential feature in acute gonorrhea in the female? Vaginitis was comparatively rare in the gonorrhea of the adult.

DR. HANDFIELD JONES found it difficult to believe that over seventy per cent of all vulvar discharges in children depended on gonorrheal infection. The following points seemed to him to render the gonorrheal theory doubtful: (1) The disease had not spread to neighboring tissues; (2) it was readily cured; (3) the inguinal glands were rarely enlarged; (4) the disease was common in delicate, rare in robust children; (5) in undoubted infection during rape the disease was much more severe than in ordinary cases of vulvitis.

DR. ROBINSON, in replying, stated that he did not think that the absence of vaginitis in these cases was an argument against their gonorrheal nature, as vaginitis was rare in gonorrhea in the adult. He did not agree with Dr. Handfield Jones that most of these children were sickly; on the contrary, they were generally in excellent health. Absence of enlargement of the inguinal glands, and the ease with which the disease was cured, showed that the disease differed from that in adults. His

views were based, not on the clinical aspects of the cases, but upon bacteriological investigation.

The following specimens were shown: DR. LEA: A uterine tumor expelled during delivery. DR. ADDINSELL: Microscopical sections of an ovary and tube removed for the relief of intermenstrual pain. DR. AMAND ROUTH: Early pregnancy in the uterus of a bitch. DR. BOXALL: Dermoid tumors of both ovaries.

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## REVIEWS.

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THE PRACTICE OF OBSTETRICS. By American Authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics and Diseases of Children in the Long Island College Hospital, New York. Pp. 768, 441 Illustrations in text and 22 Colored Plates. New York and Philadelphia: Lea Bros. & Co., 1899.

This volume is the work of a carefully selected syndicate of obstetric teachers and of others expert in the cognate lines on which they have written. It has succeeded well in its aim to be "a clear and practical treatise suited to the needs of medical classes, and also to furnish in moderate compass a concise and comprehensive guide for the practitioner." While necessarily not so compact as a work by a single writer would be, it is singularly free from overlapping and bears evidence of careful editing. Part I. is a most excellent exposition of the anatomy of the female pelvic organs and of the mammary gland, by William W. Browning. Part II., treating of the physiology of pregnancy, is by Manton, Palmer, and Dickinson. Here the story of the development of the ovum is told more clearly and minutely than is usual in purely obstetric works, and the chapter on the diagnosis of pregnancy also deserves much praise. Part III., on the physiology of labor, includes chapters by Jewett on the mechanical elements—i.e., the expelling powers, the passage, and the passenger; by Buckmaster on the clinical course of normal labor; and by Jewett on the management of normal labor. This section is freely illustrated with the well-known diagrams of Farabœuf. Part IV., by Robb and Bartley, discusses the physiology of the puerperium and contains a very good section on the new-born child and its management. In Part V., on the pathology of pregnancy, the chapter on multiple pregnancy is by Manton, on diseases of the fetal appendages by Etheridge, on the pathology of the fetus by Joshua Van Cott, Jr., on abortion and premature labor by Vineberg, on ectopic gestation by Henrotin, and on diseases of pregnancy by Etheridge. Part VI., on the pathology of labor, includes chapters by Chalmers Cameron and Clarence Webster, Etheridge, Jewett, and Edgar. The latter gives a clear and forcible statement of his well-known views on the treatment



of eclampsia. In Part VII., on the pathology of the puerperium, the most notable chapter is that on "puerperal infection" by Whitridge Williams. This is an elaborate and scholarly paper, which can be read by all of us with benefit, even if we do not agree entirely with the author in regard to some minor details. The section on prophylaxis is excellent, special stress being laid on clean hands, a clean patient, and as little manipulation of the genital canal as possible. Cervical tears are not to be sought for or sewed except for urgent reasons, routine vaginal examination at the end of the third stage being strongly deprecated. Every perineal tear is to be sutured at once when it extends deeper than the mucosa, except when contraindicated by the patient's general condition or great edema. Vaginal douches during the puerperium are allowed only under exceptional circumstances and should be given by the physician himself, unless he has a nurse who is thoroughly versed in aseptic technique. In the treatment of an infected case we agree fully with Williams in his indications for the use of the curette and douche. He says: "As soon as our patient's temperature reaches 102° F., unless we can certainly exclude uterine infection, we should investigate the uterus. The hand should be carefully sterilized and a certain amount of the lochia removed from the uterus for bacteriological examination, after which the sterilized index finger should be introduced into the uterine cavity and its interior carefully palpated. After this a careful bimanual examination should be made to ascertain the condition of the appendages and the broad ligaments. If we find the uterine cavity perfectly smooth and not covered with shreds of broken-down tissue, we may give a douche of several litres of boiled water or normal salt solution, but should not think of curetting. On the other hand, if we find the interior of the uterus rough and jagged and containing more or less débris, it should then be thoroughly curetted and douched as above. The employment of the curette is not to be recommended in all cases of puerperal endometritis, for the reason that in many instances—and these are usually the most severe cases—there is absolutely nothing which can be removed by it, and its employment can only do harm by breaking down the leucocytic wall which is intended to prevent the ingress of organisms into the deeper layers of the uterus. If, however, the uterus contains débris the use of the curette is indicated." After douching and packing with gauze, "if the bacteriological examination shows the presence of streptococci, we should at once desist from all further local treatment. If, on the other hand, we have to deal with a putrid endometritis and the symptoms do not yield to the first injection, still other injections may be resorted to. If the infection has extended beyond the uterus, local treatment should not be persisted in, as it will then do far more harm than good." As to the advisability of operative treatment in these cases, Williams writes: "Every one is agreed as to the advisability of opening parametritic abscesses as soon as fluctuation appears, rather than allowing

them to rupture spontaneously. In many cases of parametritis we may obtain on palpation a semi-fluctuation, which will lead us to suppose that we have to deal with pus; but upon opening the supposed abscess through the vagina or abdominal wall we find that our tumor is a mass of inflammatory exudate without pus formation, and only a small amount of serous fluid will escape when it is excised. The incision of these masses frequently leads to as good results as though we had evacuated a considerable quantity of pus, just as we obtain excellent results from free incisions in ordinary cases of cellulitis in other portions of the body." When pus tubes can be demonstrated their removal is urgently indicated, by laparotomy if freely movable, by vagina if low down and adherent. Taking the main bone of contention, the question of the removal of the infected uterus, he believes that "in the vast majority of cases hysterectomy in the early stages of puerperal infection is impracticable, for if we operate at a period sufficiently early to prevent the extension of the process to other organs we shall undoubtedly remove a large number of uteri unnecessarily, whereas if we wait until a later period, when other organs have become involved, the operation will be useless. There is, however, a restricted field for hysterectomy in puerperal infection—cases where the process has not extended materially beyond the uterus, but has given rise to abscess formation within its walls. In such cases, if more conservative treatment fails, we should not hesitate to remove the entire uterus. In some cases of putrid endometritis nothing that one can do appears to check the disease, and in these cases also operation would appear justified." As to serum, "the results thus far obtained from the antistreptococcus serum are not better than those obtained by other methods of treatment." Part VIII., on obstetric surgery, concludes the volume. It contains excellent chapters on the immediate repair of lacerations, the induction of abortion, Cesarean section, the Porro operation, and symphyseotomy, by Hunter Robb; on the forceps, by Jewett; and version, by Davis. The general make-up of the book is good, and the illustrations, many of which are old friends, have been well selected.

A TEXT BOOK OF OBSTETRICS. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Pp. 846, 653 Illustrations. Philadelphia: W. B. Saunders, 1898.

After looking this volume over carefully the dominant impression is that it is a most practical book, the outcome of large practical experience, terse, straightforward, and clear, well up to date, and the work of one long accustomed to teaching. As a text book it will certainly be a success.

In its arrangement it follows a logical and natural sequence. The anatomy of the pelvis and of the pelvic organs, menstruation, ovulation, fertilization, the development of the embryo and fetus, the fetal appendages, and diseases of the fetus, are

described with as much detail as is necessary to their practical understanding, and fill the first one hundred and fifty pages. Then come chapters on the physiology and pathology of pregnancy, the physiology and management of labor and the puerperium, the mechanism of labor, the pathology of labor, the pathology of the puerperium, obstetric operations, and the newborn infant.

In the treatment of puerperal infection Dr. Hirst advises the use of the curette in every case. He believes that it is only occasionally useless and very rarely actually harmful. After thorough disinfection of everything that may come in contact with the field of operation, "an intrauterine douche, sublimate solution 1:2000, at least a quart, is administered. Then with the curette and placental forceps in turn the uterine walls are gone over thoroughly in all directions six to twelve times until nothing is brought away but bright blood. A second intrauterine douche concludes the treatment. If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, it is advisable to pack the cavity with iodoform gauze." In addition any local areas of inflammation are to be treated by the application of a strong solution of silver nitrate (one drachm to the ounce). When necessary to repeat the douche only plain boiled water is to be used. He regards the outlook for serum therapy as not at all encouraging, and believes that the production of hyperleucocytosis by the exhibition of albumose or nuclein will give more practical results. Coming to the vexed question of major operative interference, he says regarding abdominal section: "In general it may be stated that the operation is demanded most frequently for localized suppurative peritonitis; it may be indicated, and often is, for diffuse suppurative treatment; for suppurative salpingitis and ovaritis; for suppurative metritis; if the inflammation extends outward toward the peritoneal investment of the womb or into the connective tissue of the broad ligament; for abscesses in the pelvic connective tissue; for infected abdominal or pelvic tumors. On the contrary, abdominal section is contraindicated or not required in simple sapremia; in septic endometritis of all forms—diphtheritic, ulcerative, suppurative; in dissecting metritis, sloughing intrauterine myomata, or in suppurative metritis with the abscess pointing into the uterine cavity; in phlebitis, lymphangitis, and direct infection of the blood current." . . . "It is a safe rule not to open the abdomen of a puerpera unless there are physical signs of inflammation in the abdomen or the pelvis." As to removal of the uterus he says: "It is not often possible to determine upon hysterectomy before the abdomen is opened, but it should be remembered that in any abdominal section for puerperal sepsis hysterectomy may be necessary." Vaginal hysterectomy is, in his opinion, "usually unsuitable for cases of puerperal sepsis, on account of the danger of clamping large masses of infiltrated and infected broad ligament."

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. XVII. New York: William Wood & Co., 1898.

This volume, issued, because of unforeseen difficulties, before vol. xvi., treats of Diphtheria, Tetanus, and Cancer. The opening chapter, by William Hallock Park, contains an instructive and interesting résumé of the results of bacteriological diagnosis as obtained by the New York Health Board, with which he is connected. Dr. Park believes firmly in diphtheria antitoxin, but holds that it is a preventive of further injury rather than a curative agent, and should be given early to accomplish the most good.

Dr. A. Jacobi, who writes the chapter on the treatment of diphtheria, also values the serum, saying "that its effect is more frequently favorable than that of former methods, and that accessory consequences do not outweigh the useful effects."

Roger Williams, who is well known as the greatest authority on cancer, contributes an elaborate chapter on its general pathology. This is followed by one on treatment, by Coley, of New York, also a man having large experience in this line. In speaking of palliative treatment of uterine cancer by carbide of calcium, Coley says: "One thing seems to be certain, and that is that the carbide of calcium at least postpones death and makes carcinoma patients vastly more comfortable while they live than any treatment known to the writer." Of sarcoma the general pathology is discussed by Williams, while Coley takes up its symptomatology and treatment. While the results from the use of the "mixed toxins" introduced by Coley were so unsatisfactory in cases of carcinoma that their use has been abandoned in these cases, in sarcoma the good results have been very decided, Coley summarizing them as follows:

1. A considerable number of inoperable sarcomata, the correctness of the diagnosis of which is beyond question, have entirely disappeared under this method of treatment.

2. A large proportion of these cases have remained free from recurrence more than three years after treatment.

3. Different varieties of sarcoma differ widely as regards the manner in which they are acted upon by the toxins. The results thus far show the treatment to be more successful in the spindle-celled variety, one-half of the spindle-celled sarcomata so far treated having disappeared. Round-celled sarcomata yield less readily, although a certain number have been successfully treated. No case of melanotic sarcoma has shown more than slight improvement.

4. The action of the toxins on sarcoma must be regarded as a rapidly progressing necrobiosis with fatty degeneration. This action is not the result of inflammation, nor does it resemble the destructive action of a local escharotic, but it is



rather specific in character, exercising a direct influence upon the tumor cells.

5. The specific action is further confirmed by the fact that several tumors have entirely disappeared when the injections were made subcutaneously, remote from the tumor.

6. This method of treatment is attended by some risk unless certain precautions are taken. The chief dangers are: (1) collapse from too large a dose of the toxins or from injections into a very vascular tumor; (2) pyemia from insufficient precautions as regards asepsis.

7. The action of the toxins of erysipelas upon sarcomata, as shown by clinical results, is in strict accord with the known action of the living streptococcus of erysipelas; therefore the method has a perfectly logical and scientific basis.

8. The toxins, to be of value, must be prepared from highly virulent cultures of the streptococcus of erysipelas.

The concluding chapters take up Malignant New Growths of the skin, by Bowen, of Boston, and Cancer of the Female Organs of Generation, by Edward McGuire, of Richmond.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Volume XXIII. For the year 1898. Pp. 491. Philadelphia: William J. Dornan, 1898.

This volume contains the papers and discussions which came before the Society at its last meeting in Boston, and, as it has been for more than twenty years, so now it continues to be the exponent of the most advanced gynecological thought of this country.

CLEFT PALATE, ETC. By W. ARBUTHNOT LANE, M.S. Pp. 278, octavo. London: The Medical Publishing Co., Limited, 1898.

This is a volume of reprints of lectures and contains much of interest and value to those interested in children and their diseases.

The subjects considered include Cleft Palate, Acquired Deformities, Mechanical or Traumatic Arthritis, Clinical Observations on the Principles Involved in the Treatment of Fractures, Treatment of Simple Fractures by Operation, Some of the Consequences of Wearing Boots, Tubercular Affections of Joints, Treatment of Inguinal Hernia, Treatment of Abnormal Mechanical Affections of the Hip Joint, Antrectomy as a Treatment for Chronic Purulent Otitis Media.

THE MEDICAL NEWS POCKET FORMULARY FOR 1899. By E. QUIN THORNTON, M.D., Demonstrator of Therapeutics in the Jefferson Medical College. Philadelphia: Lea Bros. & Co., 1899.

This is a book of ready-made prescriptions arranged under an alphabetical list of diseases. It is well done in its way, but aids of this kind should not be required by properly qualified practitioners, and when used by men who may find it easier to

copy a stock formula than to tax their intellects in the endeavor to think out one more appropriate to the case in hand, they certainly take away the stimulus of effort and tend to dwarf mental progress.

**THE SEXUAL INSTINCT: Its Use and Dangers as Affecting Heredity and Morals.** By JAMES FOSTER SCOTT, B.A. Yale, M.D., C.M. Edinb., Late Obstetrician to Columbia Hospital for Women, etc., Washington, D. C. Pp. 436. New York: E. B. Treat & Co., 1899.

The design of this work, as stated in its preface, "is to furnish the non-professional man with a sufficiently thorough knowledge of matters pertaining to the sexual sphere—knowledge that he cannot afford to be without." The author has endeavored to convey this knowledge in language free as possible from technical terms and intelligible to laymen. It begins with an introductory chapter on the sexual instinct and the importance of a just appreciation of its influence, then takes up the physiology of the sexual life, the consequences of impurity from the personal standpoint, woman's rôle in nature, influences which incite to sexual immorality, prostitution, abortion, venereal disease, onanism, and the perversions. The book is well written, but seems rather too diffuse and would be improved by judicious condensation.

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## BRIEF OF CURRENT LITERATURE.

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### OBSTETRICS.

**Function of the Corpus Luteum.**—The majority of papers upon the corpus luteum either pass over its function without remark or conclude by saying that nothing is definitely known concerning it.

The theory most usually advanced is that the corpus luteum by its rapid growth fills out the empty follicle and thus restores the equilibrium of the circulation and the lost tension in the ovary through which the rupture of the mature follicle is induced.

About two years ago J. G. Clark<sup>49</sup> began a study of the ovarian circulation under the guidance of Prof. Mall, of the Johns Hopkins University, which he has continued in the laboratory of Prof. Spalteholz. In the course of many injections of ovaries obtained from individuals ranging in age from the new-born child to the woman past the menopause, he has gradually been led to the conclusion, which has been further strengthened by this special study of the corpus luteum, that its office is chiefly that of a preserver of the circulation through which the ovum-bearing function is maintained throughout the years of the woman's best physical development.

In the young individual the main branches of the ovarian artery are found lying between the follicle zone of the ovary and a spongy-like central space, consisting of loose reticulated tissue and large open spaces. From the main stems of the circulatory tree radiating branches penetrate the follicle-bearing zone, giving off in their course branches to each follicle, until they reach the periphery, where they form an intricate anastomosis with each other immediately beneath the surface of the ovary. During the menstrual life of the woman the circulation is constantly undergoing changes due to the development of the follicles, the organization of the corpus luteum, and the retrogression of the fibrous bodies. These changes in the younger woman are mainly concerned with the follicle branches. With the development of each follicle a mighty increase in its surrounding circulation occurs, consisting in the enlargement in size and number of its vessels. This change is first observed, as noted in previous pages, at the time when the follicle wall is differentiated into the theca externa and interna.

Instead of the tiny wreath-like capillary net which surrounds the young follicle, we find in the mature follicle large arteries and venous spaces, constituting an exceedingly rich vascular tissue within the theca interna. As is at once evident, if these vessels were to remain undiminished after rupture of the follicle, the ovary in very early life would be converted, through their successive accumulation after each ovulation, into an organ composed of teleangectatic tissue; if, on the other hand, the empty follicle were to be organized by the usual granulation process which occurs in open wounds, a dense resistant scar tissue, poor in blood vessels, would be left as an end product, which, through successive accumulations, would soon so impair the circulation as to render the development of the follicle impossible. The peculiar organization of the corpus luteum is therefore established, according to Clark's opinion, for the preservation of the circulation. As has been seen in the pig's ovary, the vessels concerned in the organization of the corpus luteum are rapidly developed, and then gradually disappear in the retrogressive process, until at last no trace of them remains.

On the site of the follicle is left a slightly denser tissue which corresponds in appearance to the thickened theca externa, and this in turn is finally lost in the surrounding ovarian stroma. In injected specimens of middle-aged women in active menstrual life we find around the remains of the corpus luteum a wreath of large anastomosing vessels. This wreath gradually falls together as the degenerating tissue of the corpus luteum is removed, until they lie closely bunched together, all branches which have previously nourished the corpus luteum having been destroyed. As these vessels have approached closer and closer, they have likewise increased in size, and, although unable to follow their further fate in the tangled scheme of the circulation, one can safely assume that they finally shrink to insignificant vessels which no longer take any active part in the circulation, the blood current in the meantime having been

shifted to the circulatory twigs surrounding other developing follicles. With the disappearance of the last of these vessels which have been concerned in the organization of the corpus luteum, is left a slightly denser ovarian stroma at the site of the theca externa, but, notwithstanding this lopping-off of one of the twigs, the main stem of the circulation remains intact, holding its normal position to the inner side of the follicle zone. As is well known, the follicles are distributed in three general zones (His), an outer one consisting of primary follicles, a middle of slightly larger, and an inner of still larger ones. The inner follicles, being the first to develop, must push toward the periphery as they approach maturity, thus displacing the smaller follicles.

During the first stage of organization of the corpus luteum it still occupies the position of the ruptured follicle, but as neighboring follicles spring into active growth it must give way, and either becomes flattened out against the tunica albuginea or between adjacent follicles, or, as is much more frequently the case, is pushed back into the ovarian stroma.

This crowding back of these bodies finally exercises a certain pressure upon the central stems of the artery, which are crowded more and more toward the spongy centre of the ovary until this space is obliterated and the vessels lie in close contact with each other. The gradual increase of the denser ovarian stroma finally begins to exercise its influence upon the circulation in such a way that absorption of the corpora lutea is retarded, and instead of a loose stroma containing relatively few remains of corpora lutea in the young woman, a denser tissue with a considerable number of fibrous and hyaline bodies is seen in the older woman. In some instances Clark has found the hyaline remains of three to five corpora lutea packed one upon the other from the periphery toward the centre of the ovary, and in one slide he was able to count thirteen of these bodies. Naturally the deposition of these bodies throughout the stroma tends further to impair the circulation (the first effect of which is noticed in the periphery of the ovary where the primary follicles lay), until a time is reached where it is no longer sufficient to bring the follicles to maturity.

When we consider the fact that the ripening of a follicle requires the increase of its circulation from a fine capillary system to an exceedingly rich blood supply, we can readily understand why their growth may be gradually inhibited and finally stopped by the decrease in the peripheral circulation.

According to this view the corpus luteum is essentially a preserver of the circulation, which in the earlier life of the woman performs its function almost perfectly, but in later life, on account of the gradual densification of the stroma, more of its remains are left behind, until finally it may exercise the opposite function and assist in crippling the circulation. As an end result, the menopause is induced, not through the disappearance of the follicles, but through an impairment of the circulation which prevents their further development.



Clark's conclusions are as follows:

1. The lutein cells are specialized connective-tissue cells which appear in the inner layers of the follicle wall at the time when it begins to show a differentiation into the theca interna and externa, and gradually increase in size and number until the period of maturity, when they have assumed all of the characteristics which cause them to be designated lutein cells. The corpus luteum is therefore not an epithelial but a connective-tissue structure.

2. In the growing follicle the lutein cells are increased at the expense of the ordinary connective-tissue cells until the latter are represented by only a few cells and a fine reticulum in the mature follicle. This reticulum forms a fine web, stretching from the theca externa among the lutein cells, beyond which it is woven into a more or less fine line known as the membrana propria.

3. At the time of the rupture of the follicle the membrana propria is broken through in places by the advancing lutein cells and blood vessels, but quickly reforms a connective-tissue line in front of the lutein cells, which push it toward the centre, where it finally forms a dense core of interlacing fibres.

4. After the rupture of the follicle the lutein cells (connective-tissue cells) show a remarkable activity in growth, increasing both in size and numbers, until the empty cavity is completely filled in, after which they begin to undergo degeneration.

5. The fine reticulum between the lutein cells of the mature follicle is the antecedent of the connective-tissue cells, which are quite sparse in the first stage of the growth of the corpus luteum, but become the predominating structure at the height of its development.

6. The degeneration of the lutein cells is probably induced through the increasing density of the connective tissue surrounding them.

7. The retrogression of the corpus luteum is characterized first by the fatty degeneration of the lutein cells, followed by the shrinking of the connective-tissue net into a compact body (corpus fibrosum), after which it is gradually removed through hyaline changes until a very fine scar tissue is left, which is at last lost in the ovarian stroma.

8. The blood vessels of the corpus luteum are quite resistant, and the larger ones are among the last structures to give way in the process of retrogression.

9. The office of the corpus luteum is that of a preserver of the ovarian circulation, which exercises its function almost perfectly in the younger woman, but which at last, with the increasing density of the stroma, begins to fail in its activity, its remains being slowly or imperfectly absorbed, until these deposits finally exert the opposite influence and hasten the laming of the circulation.

10. Cessation of ovulation is induced, not through the disappearance of follicles *per se*, but through a densification

of the ovarian stroma and a destruction of the peripheral circulation which prevents their development.

**Ectopic Gestation.**—An elaborate discussion of the treatment of ectopic pregnancies by P. Ségond<sup>1</sup> may be summarized as follows:

*Ectopic pregnancies of less than five months.*—1. Cases developing normally are preferably treated by total ablation, by laparotomy, of the fetal cyst and appendages involved; in some cases evacuation through an incision, with subsequent suture and replacement of the tube, is permissible. When the fetal cyst is intraligamentous and beneath the pelvic peritoneum laparotomy must often be followed by suprapubic drainage. If the cyst is situated in a rudimentary uterine cornu it should be removed by laparotomy; if it is difficult to form a pedicle, supravaginal or total abdominal hysterectomy is necessary. Tubo-interstitial pregnancies may exceptionally be removed by vaginal hysterectomy, but, as their diagnosis is impossible without direct examination, supravaginal or total abdominal hysterectomy is the rule. When a lesion of the opposite appendages or a uterine neoplasm exists, total ablation by the vaginal route is most advantageous during the first three or four months; after this time laparotomy is preferable on account of the size of the placenta and friability of the uterus. 2. Complicated cases. Every hematosalpinx, whether accompanied or not by an intraperitoneal bloody effusion, should be removed through the abdominal incision, except that when there are bilateral lesions of the appendages or a uterine new growth total removal of the uterus and adnexa should be performed through the vagina during the first four months, through the abdomen if later. The vaginal incision is the operation of choice for encysted hematocele. If colpotomy encounters a return of the hemorrhage, or large lesions of the appendages requiring ablation, total removal of the uterus and appendages can be done through the vagina. The vaginal incision also permits opening more lateral collections and hematoceles beneath the pelvic peritoneum. Some cases demand an ischio-rectal incision, or subperitoneal laparotomy with vaginal drainage. Laparotomy should be employed only when colpotomy cannot prevent the evolution of lesions of the adnexa not amenable to vaginal hysterectomy. In very difficult cases total abdominal castration is probably best. For hematocele with successive hemorrhages colpotomy may be tried, but immediate laparotomy should follow a return of hemorrhage. For profuse hemorrhages laparotomy is the only operation which allows rapid and certain hemostasis. For suppurating hematoceles, well limited, unilocular, and easily accessible by the vagina, this should be the site of incision; but vaginal hysterectomy is better if the appendages are the seat of bilateral lesions, and the age of the pregnancy does not lead to a suspicion of too large a placenta, and the entire mass to be removed is not too voluminous. Laparotomy is necessary when there is doubt of the existence of lesions of the other

appendages, when the pregnancy has passed three months, and when the mass to be removed extends so high as to be abdominal rather than pelvic.

*Ectopic pregnancies of more than five months.*—When the fetus is living and at term immediate operation is indicated, as it is in the case of a living child which lacks several weeks of the minimum date of viability. When it is nearer this period an attempt may be made to save it only as long as this can be done without in any way endangering the mother. In general, intervention should be limited to extraction of the fetus, with simple marsupialization of the cyst and abandonment of the placenta. To this rule there are three exceptions: tubal pregnancies very easily enucleable; hemorrhage from partial separation of the placenta, which must be removed entirely for hemostasis; and secondary rupture of the sac with the fetus free in the abdominal cavity. Hemorrhage from rupture demands immediate laparotomy, as does suppurative peritonitis. In the former case marsupialization of the cyst should be attempted, but complete removal of the placenta is often necessary. When death of the fetus has recently occurred it is well to wait until the circulation between the sac and the placenta has become slow, but not over six weeks, or until menstruation returns and rupture is threatened by overdistension of the sac. In general, these cases should be treated by extraction of the fetus with marsupialization of the sac and abandonment of the placenta. If the fetus has been long dead, elytrotomy is a good operation, if the sac is low enough in the pelvic cavity and the placenta is not inserted upon its lower face. Abdominal marsupialization of the sac is usually the operation of choice, with ablation of the placenta. If adhesions do not interfere the sac may be partially extirpated and a small sac formed of the remainder, with a vaginal counter-opening. This may also be done when the fetus is free in the abdominal cavity and the sac reduced to what envelops the placenta, but usually it is better in such cases to remove the placenta and all which envelops it. When the fetus is in a complete sac, total extirpation of the latter is more often permissible than with a fetus which is living or recently dead. Total abdominal removal of the uterus and appendages must be reserved for cases in which ablation of the sac fails or is too severe for the patient, tubo-interstitial pregnancies, and concomitant uterine neoplasms. An old fetal cyst may be complicated by suppurative peritoneal lesions requiring immediate laparotomy, terminating in total extirpation or incomplete ablation with drainage. The cyst may resemble a relatively mobile tumor of the appendages, and is then amenable to the treatment applicable to cases in which the fetus has been long dead; it may bulge into a cul-de-sac or against the abdominal wall; or it may open spontaneously through the abdominal wall, vagina, rectum, or bladder. If opening on the abdominal wall or vagina, the fistula may be enlarged by an incision; if through the rectum, the abdomen or vagina should be opened. Sacs opening into the bladder

may be evacuated through the urethra if they contain small fetuses which died before the fifth month, but if the fetus is larger cystotomy or laparotomy is necessary.

Wreke<sup>2</sup> reports a case of ectopic pregnancy which ruptured about the seventh month, the fetus escaping into the abdominal cavity. The fetus continued to live and was extracted during a subsequent laparotomy, perishing four hours after delivery. Owing to severe bleeding the placenta could not be removed; it was expelled six weeks later. During this period the patient suffered from an irregular fever. The patient recovered, but an abdominal hernia necessitated another abdominal section and ventrofixation of the uterus.

Müller<sup>3</sup> reports the case of a woman, 27 years old, who gave a history of three normal confinements. When she came under observation she was five months pregnant, and stated that after lifting a heavy basket she began to flow moderately. The bleeding recurred in two-weekly intervals for about three months, always accompanied by bearing-down pains. During the last four months she did not bleed. Expulsion of decidua never observed. Examination showed a large uterus, corresponding to about the fourth month of gestation, and in the right side a tumor about the size of a fetal head. The diagnosis of simultaneous extra- and intrauterine gestation was confirmed during a subsequent laparotomy. The ovary and tube of the left side were perfectly normal, while on the right side the tube was enlarged by a growing ovum. There were no adhesions and the whole sac was extirpated without difficulty. The sac contained a well-developed fetus of about five months. Three weeks later the woman aborted, expelling a four months' fetus.

Jacobs<sup>4</sup> reports a series of 47 cases. He states that a blood-stained vaginal secretion following metrorrhagia is pathognomonic of ectopic gestation. Jacobs does not believe that a diseased uterus predisposes to extrauterine pregnancy. The diagnosis is not easy before the second month. Although a patient may recover without operation, the operation should be performed after the diagnosis has been made.

Henry C. Coe<sup>47</sup> reports 5 recent cases of ectopic pregnancy. Intraperitoneal rupture took place in all, and all but one of the patients recovered. None of the women presented any clearly marked evidences of extrauterine pregnancy. It is interesting to note that in all but one case rupture took place at a time when menstruation was due.

Guerard<sup>5</sup> reports 4 cases of ectopic gestation advanced to from four to six months. Three cases were operated on and recovered; one, treated expectantly, died. The first case was an XIpara, 33 years old. After the last confinement, which occurred about three years ago, menstruation ceased for about nine months; after that, profuse bleeding from rectum and vagina. Menstruation remained irregular, accompanied by severe pains in the right side. Palpation of the abdomen demonstrated a tumor on the right side, extending from the umbili-



cus into the pelvis, and a vaginal examination showed the whole pelvis filled by a tumor. Laparotomy and opening of the fetal sac, containing a macerated embryo of about five months. Placenta firmly attached to the intestines, removal impossible. Douglas' cul-de-sac occupied by a large hemothecoele which communicated with the rectum. Both the fetal and the hemothecoele were drained toward the vagina. The fever which existed prior to the operation disappeared. Recovery.

Case II. is a IVpara, age 33. The woman thought she was pregnant about five months. Fetal movements, which were felt, had ceased. Examination under chloroform resulted in the diagnosis of extrauterine pregnancy in the fifth month. Operation five days later. Abdominal cavity contained quantities of blood and liquor amnii. The fetal sac had ruptured, the tear extending into the placenta. Extraction of the fetus; ligation of the cord close to the placenta; placenta adhering to the intestines, removal impracticable on account of hemorrhage and state of collapse. Closure of sac from above and drainage into the vagina. Closure of abdomen. Recovery.

Case III. concerns a IVpara who had been a sufferer from biliary colic. Extrauterine pregnancy was diagnosed some time before the operation. Continuous bleeding from the rectum forced patient to submit to an operation. Removal of sac caused injury to the rectum, which was immediately closed. The uterus was fixed to the abdominal walls, and the gall bladder, containing immense quantities of gall stones, was removed at the same time. Complete recovery.

The fourth case was a IIIpara, 25 years old, who gave the symptoms of extrauterine pregnancy with perforation into the rectum. Patient declined operation and died three months later from septic peritonitis, after a preceding period of comparatively good health.

These cases again demonstrate the necessity of operating in all cases of ectopic pregnancy, as in all these cases there is great danger from septic peritonitis unless the sac is removed. When it is impossible to remove the sac *in toto*, Guerard advises closure of the sac toward the abdominal cavity and drainage into the vagina.

**Puerperal Fever.**—Eberhart<sup>6</sup> recommends 0.9 per cent saline solutions in the treatment of puerperal fever, especially in the septic variety. The author found the injections of great benefit in patients who could not retain any fluid and when the body seemed to suffer from deficiency of fluids. Experimentally it has been proved that infusion of large quantities (one litre) of saline solutions has a marked diuretic action, and by augmenting the circulation lessens poisonous action upon the kidneys. This method, already favorably commented upon by Sahli, is certainly simple and harmless and should be tried in these almost hopeless cases.

Strüeckmann<sup>7</sup> describes a case of fatal puerperal fever in which he was able to obtain pure cultures of staphylococci throughout the whole body. This case and an investigation

of the observations of other authors prove conclusively that puerperal fever is not necessarily due to the invasion of staphylococci, but may also be caused by a number of other micro-organisms—for instance, bacillus coli, gonococcus, tetanus bacillus, etc. The name puerperal fever is simply a convenient term signifying various infections which have entered the organism by the puerperal genitals.

Hofmeier<sup>9</sup> reports 1,000 cases of labor from the University Clinic of Würzburg and the methods adopted for the prevention of puerperal fever. In all cases douches of .05 per cent solution of corrosive sublimate are administered during and after labor. Seven women died as a result of various complications, but in none of these was death attributable to sepsis. All cases were used for instruction of students and midwives. The absence of sepsis under such conditions is very remarkable and speaks well for the usefulness of prophylactic douches.

**Intrauterine Injections in Cases of Puerperal Infection.**—J. A. Ouimet<sup>9</sup> holds that this method of treatment is both rational and efficacious. In the first tubes made for the purpose the chief concern appears to have been to secure a return of the injected fluid. This is undoubtedly an important condition, but a second very important one is the relation which should exist between the opening for the entrance and that for the exit of the fluid. If the latter be too large the fluid leaves the uterine cavity so rapidly that it exerts no friction upon its walls and the lavage is ineffective; if too small, the fluid accumulates and distends the uterus, and when a uterine contraction may occur and prevent the reflux of superfluous fluid through the open cervical canal, this distension may produce untoward results. Budin's horseshoe tube allows of the return of fluid even during a contraction and secures perfect lavage of the uterus. Should the tube meet with any obstacle, the nature of this obstacle must be determined and no force used in the attempt to pass it, for the softness of the uterine tissues renders them liable to perforation. The injections should consist of a 1:5000 bichloride solution. Should this be contraindicated, use a 2:100 carbolic solution.

**Antistreptococcic Serum.**—In a careful review of the results obtained by the use of the antistreptococcic serum, F. J. Cotton,<sup>50</sup> of Boston, states that no one will now contend that the antistreptococcic serum is, broadly speaking, effective against streptococcus infections. Beyond a doubt a certain degree of passive protection is possible in the laboratory, and probably something of the sort is possible in man. There seems, in view of recent work, no ground for drawing sharp distinctions between alleged species of streptococci, and though it would be a mistake to assume too close a parallel between the conditions of infection in man and in animals, yet probably a serum really effective in protecting rabbits against streptococci would afford some aid to the human organism in its struggle against a like infection. It is likely enough that this is the explanation of the temporary relief of

symptoms so often noted. It does not seem that this represents a strong action against the infection, but it is something, and in many cases a very little may turn the tide. This seems reason enough to give the serum further trial—as a symptomatic treatment if no more. There seems to be no good reason against its use. Urticaria, erythema, joint pains, etc., are of not uncommon occurrence, but of no great moment. Abscesses at the point of injection, sometimes containing streptococci, are not rare, and would indicate care in using a bacteriologically tested serum. If the serum is to be used in earnest it should be used in considerable doses. Probably in many cases the dosage has been too small. To protect a rabbit against a ten times fatal dose needed 0.2 centimetre of Marmorek's serum; this is one seven-thousandth the body weight, corresponding to about 10 centimetres in man. The potency of different makes of serum varies, and they seem to lose notably by keeping. Hence, while there are no accurate data for dosage in man, yet the problem is not to protect against an infection, but to cope with an infection in full swing, and that with a serum of doubtful efficacy; the needed dose will probably be large, if anything is to be accomplished. The limit of dosage must vary, but untoward effects are not frequent, and plenty of cases have borne 25 cubic centimetre doses. In one case a total of 1,030 cubic centimetres was given, though this in a case of some duration; there were no ill effects beyond a slight erythema. There seems, then, some reason for continuing the use of serum in cases of demonstrated streptococcus infection. Care is needful in selecting the serum to be used; it should be used, if at all, in considerable amount; and, above all, until more evidence of its power is forthcoming, it should be used as an adjunct only, and never to supplant or modify other treatment of the case.

**Cesarean Section.**—In a paper read before the German Medical Congress at Düsseldorf, Frank<sup>10</sup> stated that in his opinion it is immaterial at what point the uterus is opened. He has performed the operation thirteen times, losing one patient from acute peritonitis. In this particular case the mode of incision did not influence the fatal result. Frank does not believe that the mode of incision increases or lessens the amount of blood lost; this depends entirely upon the situation of the placenta, which is usually found in the fundus, therefore an incision in the fundus is usually accompanied by more copious bleeding. The reader of the paper sees also no good reason why an incision of the fundus should lessen the liability to the formation of adhesion between the uterus and abdominal peritoneum. During every operation the peritoneum is handled and more or less injured, and quite likely to form adhesive bands. New adhesions must form; they are least objectionable between the uterus and anterior abdominal walls, and this is best attained through the incision, advised by Kehrer, in the lower zone of the uterus. Concerning the incision in the fundus, recently recommended by Fritsch, Frank had

an opportunity to examine two women in whom the uterus was opened after this method. He found in one case the uterus retroflexed and adherent to the rectum, and in the second case the uterus was fixed in the right side.

Everke<sup>10</sup> read a paper on Cesarean section at a recent meeting of the German Physicians and Surgeons, and reports 35 operations. After deducting 7 deaths not directly due to the operation itself (twice *sectio in mortua*, two for severe eclampsia, one on a patient suffering from pleuritis exsudativa, one in a patient with septic peritonitis, and one case in which the operation was performed outside the hospital under exceedingly unfavorable conditions), the mortality was 14 per cent; of this about 11 per cent was due to sepsis. The indications for operation were twice *sectio in mortua* (one child delivered alive), twice for eclampsia (mothers deeply comatose, children alive), one retrocervical fibroid, five cases of osteomalacia, one case of spondylolisthetic pelvis, 25 cases of contracted pelvis of marked degree. Thirty children were delivered alive, 2 were deeply asphyctic and could not be resuscitated, and 3 were dead before the operation was performed. In 25 cases consecutive section, six times Porro, and twice removal of the entire uterus. Five women are again pregnant and are doing well. Everke states that in his opinion the mortality of Cesarean section should not and would not be higher than that of craniotomy if the women would come under observation at an earlier period. Unfortunately, however, most patients do not present themselves until different operations have been vainly tried and the women are exhausted and also suffering from infection. Wherever practicable, Everke induces premature labor, but at full term prefers Cesarean section to perforation of the living child. The author is not an advocate of symphyseotomy, which operation is technically difficult, offers less favorable conditions for the delivery of the living child, and frequently leaves the patient incapacitated for work. He warns against operating before the advent of labor pains, as he experienced in three cases severe postpartum hemorrhage. The compression of the cervix by means of a rubber tube has been abandoned, and instead of this Everke employs digital compressions to his entire satisfaction. Everke is also an opponent of the transverse incision of the fundus, advocated by Fritsch, as this incision is apt to be followed by secondary infection owing to bad nutrition of the wound and the liability to the formation of adhesions with the adjacent organs. The most important point in the technique is the exact and secure closure of the uterine incision; in three cases dying from sepsis he found the uterine wound gaping. He now employs three layers of suture, deepest through the decidua with closure of the ligatures in the uterine cavity, and a row of deep and superficial sutures enclosing the muscular layer and peritoneum.

Weinberg<sup>11</sup> performed Cesarean section in a woman who died from tubercular meningitis, and obtained a living child.



The fetal heart sounds continued to be audible after the mother ceased to breathe. There was a lapse of about five minutes between the death of the mother and the extraction of the child.

Jewett<sup>48</sup> concludes a recent paper with the following summary: The operation should, if possible, be done before labor. Open the abdomen by an incision of about seven inches in length, extending equally above and below the umbilicus. Seizing the rubber constrictor with both hands, one or two feet apart, pass the intervening loop over the fundus of the uterus down to the cervix, tie lightly in a single knot, and give into the hands of an assistant. Open the uterus *in situ*. Cut in the median sagittal plane, beginning at a convenient point on the posterior aspect of the fundus, and extending the incision forward and downward to the extent of six or seven inches. Open directly into the amniotic sac, with no attempt to avoid the placenta. Instantly seize the child by whatever pole comes to hand and extract. While an assistant holds the uterine wound lightly open with retractors, grasp the placenta with one hand and remove placenta and membranes. Nothing is gained by irrigating the uterine cavity. It is already aseptic, or if not the organ should be amputated. Close the musculature in three layers with a running chromated No. 2 catgut, and the serous with a continuous No. 0 catgut suture; or for the muscular wall the usual interrupted silk sutures may be employed. Cleanse the peritoneum and close the abdomen in the usual manner.

For the modified Porro operation open the abdomen from the umbilicus to a point but little above it to a point within one or two inches of the symphysis. Apply the uterine tourniquet to partly control without wholly cutting off the blood supply. Open the uterus from fundus to isthmus and extract the child and placenta. Replace the cervical constrictor with clamps to the arteries, and proceed as in other hysterectomies. If the cervical stump is left, the upper end should be securely closed before covering with peritoneum. If the cervical canal is possibly infected, a complete hysterectomy is better than amputation.

**Symphyseotomy.**—H. S. Crossen<sup>12</sup> reports an operation of the above kind, which he performed as follows: The genitals were shaved and prepared for symphyseotomy. The patient was catheterized. The urethra was held to the right by the metal catheter, and a sharp-pointed bistoury was entered into the vaginal wall to the left of the urethra and in front of the lower end of the pubic joint. The knife was pushed upward in front of the joint, keeping the flat surface close to the joint. When the sharp-pointed bistoury had been pushed part way up the anterior surface of the symphysis, it was withdrawn and a blunt-pointed bistoury introduced into the wound. When the point of the knife reached the upper margin of the joint the cutting edge was turned toward it and the symphysis carefully divided from before backward and downward. While

the joint was being divided, an assistant on each side of the patient made some outward pressure on the anterior superior iliac spines, so that separation would begin as soon as the main structures were divided. At the same time the assistants furnished support to the side of the pelvis, so that no sudden excessive separation could take place. As soon as the joint began to yield the knife was withdrawn and the forceps applied to the fetal head. The head was slowly delivered with the forceps while firm pressure was being made on the sides of the pelvis to limit the separation as much as possible. The greatest separation, measured as the head was passing the superior strait, was 6 centimetres ( $2\frac{1}{2}$  inches). The tissues were so friable from engorgement with blood and serum that, while making the incision, there was considerable laceration of the vaginal wall at the site of entrance of the knife. To limit the damage to the perineum and vaginal walls he performed episiotomy. The bones were held in place by plaster strips for some time after the operation. The union was fibrous and allowed no movement.

Dickinson<sup>48</sup> reports 2 cases, and describes an easily applied and effective sling for holding the pelvic bones in apposition during convalescence, by hanging the patient up in her own binder, somewhat as a horse is slung when he has a broken leg or when he is taken on board ship. The binder in its ordinary position is rather slack and fastened with strong safety pins. Beneath it, lengthwise of the patient, is slipped a stout cane or a stick. To one projecting end is tied a piece of clothesline. The rope runs over a large hook screwed into a ceiling beam and down to the other end of the stick. The amount of pressure and elevation is most conveniently and quickly regulated by this simple means. The woman's pelvis swings just clear of the bed. To lift her in order to change the bed linen beneath her or to pass in the bedpan, the rope is easily shortened by a nurse of average strength without any jarring of the patient. The individual for whom it was used said it was more comfortable than the trough or stretcher and was much cooler. The nurse said it was easy to manipulate. Its great advantage lies in the ease with which the vulvar and anal regions may be reached without removal of the lateral pressure.

H. McKennan<sup>49</sup> records a case where he performed symphysectomy on a dwarf 45 inches in height, 50 pounds in weight, and well developed. She had a conjugata vera of  $2\frac{3}{4}$  inches. Her husband is 5 feet 10 inches in height and weighs 140 pounds. The child weighed  $4\frac{1}{2}$  pounds and lived. Mother's convalescence was uneventful.

**Rupture of the Uterus.**—Kronland<sup>13</sup> reports the case of a IIIpara whom he found with a rupture of the uterus which had occurred some hours before. Labor pains, which had been quite active for twelve hours, had suddenly ceased. There was a large tear in the lower segment, through which both fetus and placenta had escaped into the abdominal cavity. After an

unsuccessful attempt to deliver by forceps, Kronland seized the feet and delivered the fetus and placenta with comparative ease. As the patient was perfectly comfortable and there was no hemorrhage, neither within nor without, the tear was not sutured or tamponed. Kronland again saw the patient two and a half weeks later and found her apparently dying from peritonitis and sepsis. She refused all treatment at home and did not consent to be transferred to a hospital. The patient, however, did not die, and presented herself a year later, stating that she had been in bed for five months, during which time she had no attendant. She was perfectly well.

Erdey<sup>2</sup> reports a case of rupture of the uterus in a case of transverse presentation. The rupture occurred spontaneously while patient was being transported to the hospital. The arm was protruding; the head was found in the iliac fossa; heart sounds not audible; patient in a state of collapse. Labor was terminated by decapitation. After extracting the fetus the lower uterine segment was found to be exceedingly thin and the seat of a large transverse tear. The treatment consisted in inserting a loose tampon into the uterus and packing the seat of the rupture and vagina very firmly with iodoform gauze. The uterus was then brought into a position of ante-flexion, after which a firm compression bandage was applied around the abdomen. The patient made a good recovery.

**Immediate Extirpation of the Uterus per Vaginam after Labor in Cancer or Rupture of the Uterus.**—Chrobak, Fritsch, and Seiffart have each removed the uterus for cancer of the cervix immediately post partum. To these three cases Schröder<sup>14</sup> adds a fourth one which was operated upon by Winter. Schröder advises in cases of operable cancer to induce premature labor at once, and immediately after this extirpate the uterus per vaginam. Schröder thinks that in general practice rupture of the uterus is best treated by tamponing the uterus with iodoform gauze; but if this accident occurs in a hospital, or the circumstances permit the patient's transfer to such an institution, it is best to extirpate the organ from the vagina. Schröder describes four cases which were operated on, with two recoveries.

**Spontaneous Rupture of the Vagina during Labor.**—A perforating rupture of the vagina during labor is a rare accident, and, owing to the danger of hemorrhage and subsequent peritonitis, it is a complication much to be feared. The literature contains about 90 such cases, in most of which the laceration was the result of operative traumatism. Such a rupture may, however, occur spontaneously, and is exemplified by a case observed by Siebourg.<sup>6</sup> The woman gave a history of eight normal confinements. Her present pregnancy proceeded normally, and the only symptoms she complained of were those caused by a pendulous abdomen. Labor occurred at the normal terminus. The pains commenced with great severity, but the woman continued to be up and about. The membranes ruptured spontaneously. After this she complained

of severe pains in her right side. Labor pains then ceased entirely. The woman appeared to be very ill, and a physician who was called to her aid found her in a dying condition. The contours of the abdomen were irregular, and in the left side of the abdomen fetal parts appeared to have escaped into the abdominal cavity. The head was in the pelvis. The doctor made the diagnosis of a spontaneous rupture of some part of the parturient canal and proceeded to deliver by forceps. The birth of the child was followed by profuse bleeding, and upon introducing the hand a large tear in the fornix was found which extended into the left parametrium and opened the abdominal cavity. The placenta had escaped into the abdomen. After the removal of the placenta the wound was firmly packed with gauze. The woman died twenty minutes later from shock and loss of blood. Owing to the pendulous belly and the upright position of the woman the head did not descend into the axis of the pelvis, and this probably caused the rupture of the vagina.

**Hydramnios.**—M. Keiffer<sup>15</sup> reports a case of hydramnios in twin pregnancy. At the end of the sixth month the discomfort caused was so great and the respiratory and cardiac functions were so much interfered with that it was decided to intervene in the interest of the patient's life. A sound was introduced between the uterine wall and the distended membranes, which, in spite of all possible precautions, penetrated into the amnion. About five litres of fluid trickled out slowly along the sound. The uterus slowly and regularly retracted, and the sound was withdrawn and the vagina plugged with aseptic cotton. Two or three days passed without any effort at expulsion on the part of the uterus; twin pregnancy was recognized, both fetuses being alive and the mother in good condition. A continuation of the pregnancy was hoped for, but at the end of the fifth day the mass was expelled *in toto* by means of only two contractions. There was not the least hemorrhage. The uterus underwent involution in a perfectly normal way. There was but one placenta.

**Amputation of the Cervix in Relation to Future Pregnancy.**—Felice La Torre<sup>16</sup> decidedly opposes Audebert's opinion that this operation disastrously affects the duration of future pregnancies by causing abortion, and of labor by inducing premature rupture of the membranes and by the production of a mass of cicatricial tissue which interferes with dilatation of the os. The author has performed this operation in eighty cases, using the Simon-Marcwald process. Nine of these patients became pregnant after the operation. Four of them (in whom the measure was resorted to because of chronic endometritis) had six pregnancies, of which one ended at eight months because of gemellar pregnancy with large fetuses, four occurred spontaneously at term, and one at term with the application of forceps because the cord was wound around the neck and an arm interfered with the descent of the head. Three patients, operated upon because of deep laceration of the



cervix, and who previously had had abortions and premature deliveries, had four pregnancies at term. The duration of labor in these cases was between eight and ten hours. According to La Torre the prognosis of amputation of the cervix is the following: 1. If the operation, performed according to Schröder's method of Simon-Marckwald, is properly carried out, and healing occurs by first intention, fecundation is not interfered with, pregnancy will be normal, as will also labor. 2. Should the operation be improperly performed and result in the formation of a cicatrix which is irregular because of abnormal adhesions or because healing did not occur by first intention, the cervical canal will be deformed and may interfere with the passage of spermatozoa. But should pregnancy occur it will be of normal duration, while labor may last a few hours longer than is usual. 3. Schröder's operation requires greater normal dexterity than that of Simon-Marckwald, and consequently is apt to be less well performed and to result in the formation of atypical cicatrices. 4. A very decided indication for operation is an important factor in its success. The author describes the steps of the operation in detail and reports his nine cases at length.

**A Rare Form of Human Placenta.**—Livio Herlitzka<sup>11</sup> reports a case in which, after normal delivery of a healthy child, the placenta was found to be adherent to the fundus and to the anterior, posterior, and lateral walls. It was removed with some difficulty, attended by some hemorrhage which was stopped by ergot and tamponade of the uterine cavity. The weight of the placenta was 500 grammes (about 1 pound); it was large and shaped like a bag, so that it could not be spread out flat. The circumference of the base, or placental border, was 60 centimetres (24 inches). The maternal surface was formed of many isolated cotyledons, of about the same size, and united by a thin tissue, so that they looked as if disseminated upon a membrane. This latter was vascular, and macroscopically appeared like placental substance thinned as far as possible. There was no loss of substance, except in a very restricted area. The chorion and amnion were not present, so that no measurements could be taken which would have determined the distance of the placenta from the uterine opening. During a curettage performed eight days later for the removal of some of the cotyledons it was found that the inferior point of insertion on the right was 2.5 centimetres (1 inch), and on the left 1 centimetre ( $\frac{2}{5}$  of an inch). The cotyledons were normal in color, consistence, and form. The cord was inserted centrally and was normal. Under the microscope the various portions of the placenta were normal, except that here and there were zones where the villi were surrounded by an amorphous connective-tissue substance and their functions interfered with by the obliteration of the blood vessels. The author goes at length into the question of the etiology of this form of placenta, reaching the following conclusions: 1. The etiology depends upon abnormal development, viz., insufficient growth

of the chorion frondosum and consequent persistence of the villi upon the chorion glabrum (which would thus increase the surface of fetal nutrition); from this condition would result the possibility of the development of a reflected placenta. 2. The existence of such a placenta greatly complicates its delivery, as its peculiar conformation renders its normal detachment impossible; hence the occurrence of hemorrhages.

**Placenta Previa.**—C. Fournier<sup>18</sup> advocates accouchement forcé and version for severe placental hemorrhages during the last three months of pregnancy and labor. In multiparæ the cervix may be slowly dilated with one hand; in primiparæ the dilatation should be accomplished by means of Hegar's dilators, followed by increasing sizes of Champetier's balloons. When this is completed the patient should be anesthetized, the hand introduced through the membranes or placenta, and podalic version performed.

**Expression of the Placenta.**—P. Budin<sup>18</sup> advises breaking up the attachments of the placenta to the uterus and dividing it into several fragments by means of the finger. The uterus is then compressed between two fingers in the posterior cul-de-sac and the other hand upon the abdominal wall in the hypogastric region. Anesthesia is employed in order to secure complete relaxation of the abdominal and vaginal walls and perineum.

**Multiple Pregnancy.**—S. S. Crockett<sup>19</sup> states that the statistics of various countries show that multiple pregnancy may be expected once in every 80 or 85 cases. In Great Britain twins occur once in every 90 to 110 cases; triplets once in every 6,000 to 10,000 cases. It is obvious that certain races and certain families develop cases of multiple pregnancy oftener than others. It is not uncommon to observe frequency of twins among different members of the same family; and the strangest part of this family peculiarity is that it does not seem to be confined to the female side, as the same man is often the father of twins by different women, and brothers are often fathers of twins by women in no way related to each other. In cases of twins both children may develop from the fertilization of two separate ova or of only one ovum. The ova may be fertilized at the same coitus or at different times and by different males. Twins from two ova are six times as common as twins from one ovum. Twin pregnancies end prematurely in about 66 per cent of cases. One embryo may die, be expelled, and the other go on to maturity; the dead embryo may not be expelled until the birth at term of the living. It may then appear as a shrunken mass that has been flattened by the pressure of the growing fetus. In 64 per cent twins are of the same sex, and there is no evidence that twins are less fertile than others. Statistics would indicate that the head presents in about 49 per cent, head and breech in 31 per cent, both breech in 8 per cent, head and transverse in about 6 per cent, breech and transverse in about 4 per cent, both transverse in a smaller number. In multiple deliveries labor is usually easy.

**Postpuerperal Psoitis.**—Walter C. Wood,<sup>53</sup> in reporting two cases of his own and two observed by Dickinson, says, in speaking of postpuerperal psoitis: This variety of septic infection occurs rather late after confinement, and may not be closely linked to that event by continuous septic symptoms. Extension of infection may take place from the broad ligament to the connective tissue about the psoas muscle, and even along the course of that muscle up to the perinephric fat. It may be considered a variety of remote parametritis, using the word "remote" as indicating distance from the uterus and not time from the delivery. The cellulitic deposits in the cases of remote parametritis sometimes suppurate. They do so—if it happens at all—some weeks or even months after labor, and when this occurs along the course of the psoas muscle it may cause considerable confusion, the collection of pus being liable to be mistaken for abscess due to caries of the spine. As these cases have an insidious onset and also present an abdominal tumor, they may come to the notice of the general surgeon for diagnosis and treatment. The subject has received but scant attention at the hands of American and English writers, and the literature is chiefly in French. There are two theories regarding its causation: one, that a rupture of muscle fibres has occurred with a hematoma and secondary indirect infection at this point of lowered resistance; the other, a direct infection of the cellular tissue around the muscle by way of the lymphatics. Clark, in the *Transactions of the New York Medical Association* for 1886, vol. ii., pp. 70–84, in an article entitled "Psoitis and Peripsoitis," gives the opinion as follows: "Primary suppuration in the psoas muscle always results from rupture of muscle fibres occurring during violent exercise, straining in parturition, gymnastic exercises, an attempt to avert a fall, or a direct blow." He then gives a detailed history of three cases where the traumatic etiology is self-evident, but in none of them is there any connection with the puerperal state. He thus offers no evidence in support of his statement that it occurs as the result of "straining in parturition." Yet his traumatic cases present the same clinical history as the post-partum cases. In considering the second theory, we lay aside the usual type of puerperal infection—viz., a pelvic peritonitis. We also note that in the cases reported there are two varieties: one when there has been plainly an infectious process in the uterus and the cellular tissue of the true pelvis; the other, where there has been no clinical evidence of such a pelvic lesion, but the psoas abscess has been practically the only local sepsis. In a similar way we see septic fingers and secondary axillary abscesses both with and without an intermediate local lesion in the arm. The lymphatics of the lower segment of the uterus descend, together with those of the vagina, and pass backward to enter the internal iliac chain of lymphatic glands, which in turn connect with the mesial group of lumbar glands lying along the aorta and vena cava. This mesial group has most intimate connections with the lateral lumbar glands,

lying behind the psoas muscle and in the intervals between the slips of muscle arising from the transverse processes of the lumbar vertebræ. The lymphatics from the upper segment of the uterus proceed outward in the broad ligament, and, following the ovarian vessels, empty into the mesial group of lumbar glands. Thus we see that an infected tear of the vagina alone, or of the cervix, can directly infect the cellular tissue about the psoas muscle without an intervening metritis or cellulitis of the broad ligament. Other cases would seem to be examples of infection passing through the lymphatics going in the broad ligament, with a metritis and cellulitis and the psoas abscess as a secondary infection. The relation of the forceps to these remote septic lesions, and also whether the high forceps can injure directly the psoas-iliacus muscle through the thinned-out uterus, are questions of interest to the obstetrician. In reference to diagnosis we can speak more definitely. Given a knowledge that acute psoitis may occur, the diagnosis is an easy matter. Septic symptoms with the history of a recent delivery suggest a pelvic examination. This gives a negative result. Then examine the whole abdomen instead of assuming that a constitutional disease is present. Localized pain and swelling will be found on one side, and together with a flexed thigh means a retroperitoneal lesion. The tumor may be indistinguishable from the kidney. If it is a kidney we should expect a previous cystitis and a urinary examination, or, better, several examinations will usually show a "surgical kidney." A blocked ureter may restrain the kidney débris and the urine be clear even with a pus-kidney. However, a lumbar incision is indicated for both conditions.

A perinephritic abscess may be excluded by its presenting more emphatically toward the loin. There is some confusion between a true psoas abscess and a suppurative process in the fat around the kidney. The latter gives a brawny feeling, and even redness of the skin when the infection is not a tubercular one. It is important to exclude the common tubercular abscess arising from spinal caries, for the prognosis is far different and the treatment should be also. As the collection of pus is in the same location in both instances, there is no difference in many of the physical signs. The acute psoitis is tender, while a collection of tubercular débris is painless until infected with the pus organism. Our reliance must be in a careful history and examination of the spine, for the osteitis precedes by many months the collection in the psoas sheath. This osteitis always manifests itself by symptoms, such as slowness in rising, early fatigue, a muscular rigidity giving the characteristic attitude, and pain referred to the peripheral ends of the corresponding nerves, and thus described as being felt in the abdomen, chest, or limbs. The so-called "quiet" disease, without marked symptoms, is not the variety that produces an abscess, but is rather a dry osteitis. The characteristic deformity is also to be expected before the onset of a psoas collection. We must exclude that variety of appendicitis



which produces a lumbar phlegmon. Although this variety is exceptional, it is worthy of careful consideration. Appendicitis in general has recently been recognized as being the cause of postpuerpal sepsis to an extent not hitherto imagined.

E. Van de Warker<sup>22</sup> believes that psoas abscesses of women never originate within the sheath of the muscle, but by extension from the intrapelvic cellular spaces. There are three points to be borne in mind when making a diagnosis—edema of the leg, retraction of the thigh of the affected side, and extension downward of the cellular infiltration into the vaginal wall. The above three symptoms point to affection of the psoas and iliac regions. The vaginal route is the natural one, and any abscess in this region may be opened from this direction. Anteriorly or posteriorly makes but little difference, but he thinks the anterior cul-de-sac offers some facilities in reaching the fossa that the posterior route does not possess. It is usually necessary to insert drainage. This must be either a glass or rubber tube. The tube allows thorough irrigation of the cavity. He reports a case which terminated fatally; he believes death was due to the delay in irrigating the cavity.

**Chronic Endocarditis complicated by Pregnancy.**—Jess<sup>23</sup> reports 29 cases of cardiac diseases complicated by pregnancy from the University Clinic of Kiel, of which one proved fatal about two weeks post partum. This does not coincide with the experience of other authors and with that of the reviewer, in whose experience marked valvular lesion is one of the gravest complications of pregnancy and labor. Thus MacDonald reports a mortality of 60 per cent, Berry Hart 87 per cent, Leyden 55 per cent, Lublinsky 71 per cent, and so forth; therefore the report of a mortality of only 4 per cent should not be taken seriously. Contrary to other authors, Jess does not hesitate to advise marriage in young women suffering from cardiac diseases. He exempts only cases where the disease has extended over a period of years and with non-compensated mitral stenosis. [The reviewer must warn decidedly against such advice, for in his experience two lives were sacrificed by non-heeding his advice against marriage.] The paper otherwise contains nothing new, and is simply a recapitulation of the advice given by other more experienced and more reliable authors.

**Lysol Poisoning.**—Cramer<sup>24</sup> reports a fatal case of lysol poisoning after uterine irrigation. The woman was a primipara, 22 years old, in whom, on account of fever one day post partum, the uterus was irrigated with one per cent solution of lysol. The injection of about one and a half litres was followed by collapse, which soon improved under appropriate treatment. The next day the woman had jaundice and the urine gave a phenol reaction. These symptoms of intoxication soon subsided. A few days later the fever returned, accompanied by somnolence and vomiting, and on the tenth day the patient died in an attack of convulsions. Postmortem showed endometritis, parametritis, and an acute hemorrhagic nephritis. Cramer believes that the poisoning was not caused by the lysol

itself, but that some of the fluid injected entered the circulation. Poisoning from diluted lysol has never been observed, but may occur from the drug in the undiluted form. [In this case death was probably caused by an acute sepsis and not by the injection of the lysol, which is one of the most harmless and at the same time most efficient of antiseptics.]

**Persistence of the Hymen.**—N. Cullman<sup>22</sup> was called to see a patient in labor, and found the following conditions: (1) The hymen was unruptured, although the patient had been married ten months; (2) the membrane was fibro-elastic and very dense; (3) a small opening allowed impregnation to occur; (4) the hymen was very sensitive; (5) the clitoris was unusually large. The non-rupture of the hymen delayed the second stage of labor. From a medico-legal point of view cases of this sort are important, showing that impregnation may occur without rupture of the hymen. On the other hand, absence of the hymen does not prove that defloration has taken place.

**Acute Yellow Atrophy of the Liver.**—Acute yellow atrophy of the liver is a very rare disease and appears usually as a complication of pregnancy or the puerperium. Thompson<sup>23</sup> reports a case occurring in a woman 35 years old, who twice aborted and five times carried to full term. When about six months pregnant the patient began to complain of nausea and vomiting, and pains in the region of the liver. At the same time the skin assumed a yellowish hue, and when seen by Thompson there was decided jaundice. An examination showed the absence of fetal movements and heart sounds. Liver dulness extended about two fingers below the sixth rib. The urine contained biliary pigments. The next day the patient complained of pains throughout the body, was very restless, and answered questions slowly and with apparent effort. The comatose condition became more pronounced during the next few days, and finally the patient could no longer be aroused. A week after admission to the hospital labor pains began and a macerated fetus was expelled. The placenta was very yellow, but otherwise showed nothing abnormal. The patient died two days post partum. During the last two days she was deeply comatose, had a subnormal temperature and very small pulse. A postmortem showed absence of peritonitis. The liver, diminished to about half the normal size, looks yellow in sections, with here and there islands of red tissue. Spleen enlarged, soft, and very friable. As poisoning by phosphorus and sepsis could be excluded, the case was one of acute yellow atrophy. The causes of this rapidly fatal disease are not yet discovered, but, as the general symptoms resemble those of acute poisoning, it is generally assumed to be due to infection. Demelin advises rapid evacuation of the uterus. In this case, however, the symptoms did not improve after labor. It is, therefore, hardly probable that such a method would offer any prospect of success.

**Precocious Menstruation.**—Hofacker<sup>6</sup> publishes the case of a child, 9 years of age, in whom had occurred from her first year a discharge of blood from the genitals every three or four weeks. After the bleeding the child felt weak, but otherwise was quite well. At 2 years the child was as tall as a girl of 7, but then ceased to grow, and now, at the age of 9, she is of normal height. The breasts are well developed, and there is an abundant growth of hair in the axilla and upon the mons veneris. Labia majora and minora, and also the pelvis, are larger than normal. The mental faculties are poorly developed. Hofacker states that all cases of precocious menstruation are associated with pathological conditions. In this case there existed well-pronounced symptoms of rachitis.

**Obstetrical Paralysis.**—F. Allard<sup>24</sup> describes two cases of paralysis due to traction during labor affecting the brachial plexus. They are cited as showing the advisability of early and continued treatment by galvanism and faradism. At the beginning of such treatment the voluntary and electrical contractions were equally imperfect in the two children. In one case the use of electricity was not begun until three months after birth, and fifty sittings were required; in the other but one month had elapsed, and recovery was complete after thirty applications.

**Estimation of Fetal Weight.**—Bruyère<sup>25</sup> has attempted to estimate the weight of the fetus during a breech delivery by measurement of the fetal extremity presenting. He finds that this can be done approximately by appending three zeros to the mean of the bimalleolar and bicondyloid diameters of the leg expressed in centimetres. This gives the weight of the fetus in grammes. The result is inexact in case of illness of the mother, premature birth, and twin pregnancies.

#### GYNECOLOGY AND ABDOMINAL SURGERY.

**The Diagnosis of the Condition of Each Kidney by Inoculation of the Separated Sediments into Guinea Pigs in Suspected Tuberculosis.**—Edward Reynolds<sup>26</sup> states that it is probable that the discharge of the bacilli with the urine is not uniform, and no man can expect to search a sediment so thoroughly as to detect the bacillus with certainty if only a few are present; but it is held that if a fresh sediment is injected into the peritoneum of a guinea-pig the presence of only one or two bacilli will be enough to cause infection in this very sensitive animal. The generally accepted opinion that this is the most delicate test for tuberculosis known, and the great surgical importance of using the most delicate test possible for the determination of the condition of each kidney separately in suspected renal tuberculosis, has then been his reason for injecting the sediments obtained from the kidneys by ureteral catheterization into separate guinea-pigs in each of three cases of suspected renal tuberculosis. One case was positive, as regards one kidney only; both the others were

wholly negative. The urine from the positive case was examined microscopically, but no bacilli were found. The injections of the sediment from the positive case were made as follows: The barrel and needle of a small Koch syringe were thoroughly sterilized by dry heat; the abdominal wall of a guinea-pig was thoroughly cleansed, and then one-half cubic centimetre of the sediment of the urine from the *right* ureter was injected into the abdominal cavity. The barrel and needle of the syringe were cleansed and again sterilized. The abdominal wall of another guinea-pig was cleansed, after which one-half cubic centimetre of the sediment of the urine from the *left* ureter was injected into the abdominal cavity. The pigs, following the injections, showed only slight disturbance, from which they recovered in a few days, and were apparently quite well for the eight weeks they were under observation. An examination of the pigs between the fifth and sixth weeks showed that the one which had been inoculated with the sediment of the urine from the right kidney had, in both groins, enlarged glands, which were hard and quite nodular. The one injected with the sediment of the urine from the left kidney showed no enlarged glands and was apparently in a healthy condition. On the same day that the inoculations were made the portion of sediment which had been reserved for microscopical examination was centrifugalized, and the sediment, placed on cover glasses, was carefully dried, stained, and examined. No tubercle bacilli could be found. The infected kidney was removed and found to have miliary tuberculosis of the pelvis and kidney. This case is probably the first in which this test has been tried for the examination of each kidney separately.

**Endothelioma Lymphangiomatodes of the Cervix.**—H. Robb<sup>27</sup> reports a case of the above variety. On microscopical examination he found the tumor to be of the endothelial variety, the endothelium having sprung from that lining the enlarged and new lymphatics in the uterine wall. He states that only three other cases of this variety have been reported.

**Myomectomy.**—C. P. Noble<sup>28</sup> believes that the next advance in the treatment of fibroid tumors will be the general adoption of early operation and the more general substitution of myomectomy for hysterectomy, as he believes this to be the most conservative treatment. He has performed myomectomy twenty-five times, in eight by abdominal section, the others per vaginam. All the cases recovered, and three have borne children since operation.

**Carbide of Calcium in the Treatment of Cancer.**—Emil Ries<sup>29</sup> claims that acetylene gas has no escharotic action, that he has absolutely failed to prove that it postpones death or makes the patient more comfortable than any other treatment, and, lastly, that the carbide treatment not only is not superior to other methods of treatment of inoperable cancer, but exposes the patient to some quite unnecessary dangers.

**Pelvic Disease and Insanity.**—Ernest Hall<sup>30</sup> believes that it is incumbent upon us to make a thorough pelvic examina-



tion of all women before signing papers of commitment, and, if pelvic disease be found, to give such patients the benefit of modern gynecological treatment; and to unite in urging upon the government the necessity of thorough and systematic gynecological treatment of its insane.

**New Growth of the Bladder.**—Edward Reynolds<sup>31</sup> reports the case of a woman who complained of frequent and painful micturition. On examination the uterus was found to be retroverted and movable. By means of a cystoscope the mucous membrane of the bladder inside the right ureteral orifice was seen to be much reddened and two excoriated-looking spots were near the right ureter. The woman was treated for five months both locally and by diet, but the reddened surface spread steadily and assumed a raised appearance. The technique of the operation finally done was as follows: The patient was etherized and elastic catheters placed in each ureter, each being inserted about two inches. The bladder was then separated from the uterus up to almost the level of the peritoneal reflexion by an incision similar to the anterior incision in vaginal hysterectomy, the patient being in Péan's modification of the Sims position. The cervix was then held well backward by a double tenaculum, a large cystoscope passed into the bladder, and under the guidance of the eye a knife was passed into the bladder and an incision made between the right ureteral orifice and the supposed new growth. This cut extended through the vesical mucous membrane and the submucous and muscular tissues, so that the point of the knife was visible in the freshly made space between the bladder and cervix. The edges of the incision were now spread apart with tenacula from the vaginal side, when with curved scissors the incision was easily carried around the whole new growth at a distance of about half a centimetre from it on each side and a little more than this above and below, the ureteral orifices thus lying just sufficiently outside the cut to permit of suture of the vesical walls. The vesico-vaginal fistula was then closed with an interrupted catgut suture, being brought together from side to side, and the anterior vaginal wall was reunited to the cervix by a similar running suture. A self-retaining catheter was placed in position, and several instruments of different curves, as well as a soft catheter, were tried during the next two days, but all of them produced vesical tenesmus and were withdrawn. After the operation there was some congestion of bladder and cervix; this was relieved by the use of a pessary.

**Fibroma of the Vulva.**—Malcolm Storer<sup>31</sup> states fibromata of the external genitals occur about once in every 600 of all new growths in women. He describes a tumor occurring in a woman (white) aged 41 as follows:

Tumor hanging from the outer side of the left labium majus, just above the level of the clitoris, by a pedicle twenty centimetres in length and four centimetres in circumference. The tumor itself was pear-shaped, very edematous, and its greatest circumference about twenty-eight centimetres. It was covered

with fairly smooth non-adherent skin above, while below the skin was thickened and puckered in around an ulceration two centimetres in diameter at the most dependent point. This ulcer had existed for a number of months at least, but was a source of annoyance only from the necessity of keeping it clean. The tumor was much harder below than above, but not nodular. It was not sensitive, nor was traction upon the pedicle painful. The pedicle contained no palpable vessels, nor could it be followed into the inguinal canal.

**Tuberculosis of the Mammary Gland.**—A. E. Halstead and E. R. Le Count<sup>33</sup> state that in the beginning mammary tuberculosis may not present any recognizable symptoms. As the disease progresses the symptoms vary according to the form the tubercular lesion assumes. In the disseminated nodular or discrete type of the disease the nodules may be either single or multiple. The breast generally preserves its normal size and appearance. In only a few cases is the volume appreciably augmented or its contour changed. The skin covering the gland is normal in appearance, not adherent to the intra-glandular mass, and without fistulæ opening on its surface. On palpation we find one or more nodules, which are movable, hard, and only slightly painful on pressure. Their outline is, as a rule, distinct, though at times they may be ill-defined and apparently merge into the surrounding normal gland tissue. These slowly increase in size, soften, and undergo caseous degeneration or suppuration, and in the end form fistulæ, from which is discharged tubercular pus. The nodules may, before fistulæ are established, so enlarge that one or more may coalesce, forming tumors of considerable size, which ultimately terminate by discharging their contents through fistulous openings. In cases where there are a number of nodules they are usually distributed throughout the gland. When a single nodule is present it is nearly always formed in the upper and outer quadrant of the organ. The most characteristic features of the disseminated nodular form of this disease are the extreme chronicity of the process and its painless and insidious development. In many cases the nodules remain stationary for years without causing any subjective symptoms that lead the patient to seek medical advice. In the end, however, nearly all become slightly painful, gradually enlarge, and undergo the degenerative changes common to all forms of tubercular disease. When softening has taken place, before the cavities coalesce, fluctuation may be detected. In most cases, however, the cavities are so small that it is impossible to elicit this sign.

The confluent form of the mammary gland tuberculosis is characterized by a more acute onset, greater pain, and rapid enlargement of the breast. On palpation we find a tumor usually single, varying in size from that of a walnut to an orange, of irregular outline, nodular, and fluctuating. The gland is generally uniformly enlarged. The tumor, if single, is usually found in the outer half. This type of the disease is

more common than the disseminated nodular form. In many cases fistulæ form early, and it is in this condition that the surgeon frequently first sees the patient.

In about 75 per cent of the cases reported there was a tuberculous adenopathy affecting the axillary glands on the same side as the breast lesion. The disease in the axillary glands, even when secondary, usually advances more rapidly than that in the breast. In some cases the lesion in the axilla is joined with the breast lesion by a band of indurated tissue which can be distinctly palpated. When this is present it is regarded as a characteristic sign of mammary tuberculosis. As in other forms of tuberculosis, softening and suppuration with the formation of fistulæ is the natural and frequent termination of all types of mammary tuberculosis. Spontaneous healing of tubercular foci in the gland before suppuration takes place seldom, if ever, occurs.

In the first of these, the disseminated tuberculosis of the mammary gland, there is very little or no increase in the size of the organ and the skin is unbroken by fistulæ. On section distinct, firm nodules are found, which vary in size from a pin-head to an almond. Their yellowish or wax colored centres are surrounded by a zone of grayish or bluish-gray, slightly translucent tissue, and the separate foci are isolated by healthy gland tissue. The gland tissue immediately adjacent to the alien areas is firmer than normal. Various areas show a diversity in the character of the central portions, some more gray, some more yellowish, and some may be calcified.

In the confluent form the gland is commonly enlarged, even to double its usual size, but the enlargement is seldom symmetrical; for example, the external half can be much more increased in size than the remainder of the gland. On section through that part which is judged to be most changed, it is found to be made up of cavities, irregularly spherical and flattened, with multiple diverticulæ. Some that are apparently separate and independent are found, on closer examination, to be connected, by minute sinuses, with neighboring cavities. The walls of these cavities are roughened by small cup-like depressions separated by ridges, giving to the whole an areolar appearance. The lining of these cavities is a soft, grayish membrane, one to two millimetres thick, with here and there yellowish points. Externally it sends fibrous prolongations into the adjacent tissue. The gland tissue surrounding the cavities is of increased firmness for a distance of from two to three centimetres, grayish pale, and fibrous. In this are small, pinhead-sized, grayish or finely transparent areas projecting slightly above the cut surface. These minute foci are more numerous in the tissue surrounding than in the wall itself. The larger cavities communicate by fistulæ with the exterior, and these channels possess lining membranes similar to those of the cavities. Ordinarily only one breast is affected and the axillary glands are involved.

In the early stages of the discrete or disseminated nodular

form of primary mammary tuberculosis, especially in those where no axillary adenopathy is present, a positive diagnosis can never be made without a microscopic examination of the tumor. The conditions most likely to be confounded with tuberculosis of the breast are adenofibroma, sarcoma, simple cysts, carcinoma, and gummata.

*Treatment.*—In disseminated nodular or confluent tuberculosis of the mammary gland, early removal of the breast and the axillary gland on the same side offers the greatest hope for a speedy and permanent cure. Nothing short of this can assure an eradication of the disease. In all cases of *primary* mammary tuberculosis the prognosis, after such an operation, is excellent. In secondary tuberculosis of the gland the prognosis, of course, depends upon the seat and extent of the primary lesion. In the discrete nodular form, where the disease is limited to one focus of inflammation, the remaining portion of the gland appearing normal, the removal of the nodule together with the gland tissue immediately surrounding it will be sufficient, providing the patient can be kept under observation for some time after the operation. In those rare cases of cold abscess of the breast not associated with tuberculosis of the axillary glands, or in those in which a radical operation is contraindicated, aspiration of the abscess and injection of iodoform emulsion may be employed.

**Epitheliomatosis of the Breast.**—C. G. Cumston,<sup>33</sup> in describing this disease, states that it only involves the epidermis, which is only slightly thickened. There is no underlying infiltration nor induration. The lesions met with are as follows: On the thickened borders of the epidermis Darier's bodies are found. When they are typical, these figures are apparently a sort of rounded cyst, clear at their periphery, with their limiting membrane, occasionally presenting flattened nuclei, and containing, or rather including, another cell with its protoplasm and nucleus. The protoplasm is only slightly stained, while the nucleus, which is always large and well stained, shows signs of karyokinesis. Toward the centre of the lesion these bodies are more numerous, and at last completely obstruct the interpapillary spaces. The entire epithelium is then composed of pseudo-cystic cells, which are completely wanting in uniting filaments. These changes are quite as marked at the basal membrane, near the generative layer, as in the midst of the interpapillary columns. During all this process all keratogenic evolution has entirely disappeared. A kind of fibrinous exudate is immediately superposed on the rete mucosum of Malpighi, and at last the exudate disappears, the epidermis undergoes a complete abrasion, and is only represented by the decapitated trunks of the interpapillary columns. Below, the reactional infiltration is both limited and intense, and is seen as a closely packed accumulation of plasmatic cells. At certain points the diseased epithelium undergoes most important changes. The papillæ become elongated, deformed, and present a bifurcation; the basement membrane, being broken



through by the vacuolated epithelium, sets up a perfectly distinct carcinomatous infiltration. The stroma is fibrous, while the alveolæ are filled with polygonal epithelial cells, with an oval nucleus and rather poorly off in chromatin. Many of them are undergoing karyokinesis. The cells are uniformly filled with a granular protoplasm. The affection rarely attacks both breasts. When epitheliomatosis occurs in the breast, the presence of a carcinoma in the latter is sure to occur sooner or later. If it were not for this, epitheliomatosis would in all probability continue indefinitely. He believes that total excision is the only way to bring about a cure.

**Cancer: Surgical Interference in Gynecology.**—J. H. Croom<sup>34</sup> believes that it is quite conceivable that with a cancer very early diagnosed and operated upon the prolongation of life is possible, although such has not been his experience. After cancer has developed beyond its most initial stage, he believes that the removal of the organ does not prolong life and that the subsequent death is infinitely more terrible. He thinks the surgical method of dealing with uterine cancer has done little to ameliorate suffering or prolong life.

**Primary Sarcoma of the Vagina.**—C. A. Morris<sup>35</sup> reports a case of the above variety occurring in a woman 20 years old and complicating her first pregnancy. He removed the whole of the diseased structures, including the right and posterior portions of the hymen and vagina and anterior portion of the perineum and part of the right labium majus. The wound was loosely drawn together with silkworm-gut sutures. Seven days after the operation a healthy child was born. There has been no recurrence at the end of two and a half years.

**Method of Creating a Vagina in a Case of Congenital Absence.**—Robert Abbe<sup>36</sup> planned and carried out the following operation on a woman, 21 years old, who had a congenital absence of the vagina: For several days the alimentary canal was made as empty as possible. A crescentic cut was made across the interlabial space, with concavity upward, thus getting a little shelf of mucous membrane below the urethra to divert escaping urine. By blunt dissection a free cellular space was readily created between the bladder and the rectum, to the depth of five inches. This was temporarily packed with sterile gauze to check oozing. Thiersch skin grafts were then cut from the thigh sufficiently large to cover an ample plug made thus: A thin French rubber condom, such as can be obtained at drug stores, was sterilized by boiling and stuffed with long strips of iodoform gauze to its full capacity. Upon this the skin grafts were spread with their wet sides outward and edges freely overlapping. Numerous small punctures had been previously made in the rubber after stuffing, so that the gauze contents would receive any discharge lurking about. A piece of rubber tubing the size of one's little finger, wrapped loosely about with iodoform gauze, was now inserted into the rectum, with a view of permitting free exit of gas during the subsequent days of enforced constipation. Finally the graft-covered

form was carefully passed into the new vaginal space, the walls of which were held apart by three deep retractors, which on removal allowed the fresh surfaces to come into closest contact with the wet surface of the grafts. To prevent the plug from being in the slightest displaced, two silkworm-gut stitches were passed across the vulva, transfixing the gauze-packed tampon, and tied over iodoform plugs at either side. The urine was drawn every eight hours for a week, with such precaution that no cystitis resulted. The bowels were confined for ten days, without the slightest discomfort to the patient. Light diet was given. No febrile reaction whatever followed. On the tenth day the retention suture was removed, the end of the plug cut, and the packing first removed before the rubber form. After cleansing, it was seen that the grafts had taken universally and a new lined cavity had been created, four and one-half inches deep. The patient was married ten weeks after the operation. She keeps the vagina open by using a wax bougie part of every day. This bougie is held in place by a T bandage. If the plug is omitted for one or two weeks considerable shrinkage takes place, but the renewal of the plug overcomes this.

**Primary Tuberculosis of the Cervix Uteri.**—F. S. Matthews<sup>37</sup> reports a case of tuberculosis of the cervix which occurred in a negress 22 years old. Examination of the cervix showed it to be large, worm-eaten, and its cavity excavated. It bled freely. The growth extended to the vagina. The right tube and ovary were enlarged. The uterus and appendages were removed, and upon microscopical examination the cervix was found to be the seat of tuberculous inflammation. The uterus, appendages, and the broad ligament were free from tubercles.

**Curettage of the Uterus, its Influence upon the Complications of Endometritis.**—J. A. Ouimet<sup>38</sup> reaches the following conclusions in regard to the subject: 1. The existence of periuterine inflammations during the course of an endometritis is, by all older authorities and by many at the present day, considered to constitute a contraindication to all active treatment of the uterus. 2. An examination of the many cases in which this condition was not so regarded has shown that intrauterine intervention does not always aggravate these complications. The intervention may sometimes even cause a disappearance of the complications. 3. The *sine qua non* of the innocuousness is rigid antisepsis. 4. In the case of non-suppurative oöphoro salpingitis laparotomy should not be resorted to until appropriate treatment of the concomitant endometritis has been tried. This preliminary treatment, even should it not cure the oöphoro-salpingitis, will at least obtain complete asepsis of the genital tract.

**The Abuse of Demolishing Operations.**—L. M. Bossi<sup>39</sup> says that curetting of the endometrium followed by packing of the uterine cavity and repeated columnization of the vagina would do away with the necessity for certainly one-third of the

vaginal hysterectomies. Many operators, no doubt, will dispute this assertion and say that such treatment is likely to cause salpingitis instead of curing it. Clinical facts, however, bear him out in his statement that minor operations and simple measures obtain the best results in many cases and preserve both the patients and their normal functions. The author submits the following table of cases in his own practice, whose diseases predestined them to sterility or castration, and who were cured by conservative methods and later gave birth to children:

Operation.	No. of cases.	Indications.	Sterility.		Gestations.		
			Absolute.	Relative.	During first six months after operation.	Sixth to twelfth month.	After twelve or more months.
I.—Curettage of endometrium and packing of uterine cavity	108	Endometritis and salpingitis.	21	37	64	30	14
II.—Cervicotomy, curettage of endometrium, and packing.	59	Congenital or cicatricial stenosis of cervix, endometritis and salpingitis.	44	15	27	8	9
III.—Cervicotomy, curettage, and application of Wright's pessary.	36	Stenosis of cervical canal and severe flexion of uterus; endometritis and salpingitis.	33	3	6	22	8
IV.—Plastic operation of cervix, curettage and packing.	42	Parenchymatous cervicitis, endometritis, salpingitis.	11	31	14	18	10
V.—Emmet's operation, curettage, and packing	35	Deep laceration of cervix, endometritis and salpingitis.	..	35	19	7	9

**Hydronephrosis.**—Hildebrand<sup>40</sup> and Haga made a series of experiments to search for the cause of hydronephrosis and its relation to floating kidney. The experiments showed that a kinking of the ureter will produce a hydronephrosis and a degeneration of the entire kidney. A detachment of the kidney from its capsule never causes hydronephrosis, even if complicated by a twisting of the ureter.

**Vaporization of the Uterus.**—Pincus<sup>21</sup> reports a few more cases and highly praises the value of this method in cases of

climacteric bleeding and as a means of sterilizing the uterine cavity prior to the performance of hysterectomy. About two minutes' vaporization with his modified apparatus suffices to produce entire obliteration of the uterine cavity.

**Nervous Disorders following Castration.**—Schmitz<sup>5</sup> reports 3 cases of grave disturbances following the oöphorectomy. In all of these the ovaries were removed in connection with uterine fibroids. Schmitz questions whether it would not be better to not remove otherwise healthy ovaries. The symptoms following castration are probably analogous to those after the removal of the thyroid gland, and it is probable that the ovary forms secretions, the presence of which is important to the organism, while their absence produces disturbances. Schmitz formulates the rule that in all benign uterine tumors the ovaries should be preserved.

**Injuries to the Bladder from Abdominal Operations.**—Bloch<sup>11</sup> discusses the influence exerted by large abdominal tumors upon the form and position of the bladder and the injuries to this organ which may occur from removal of the tumors. This accident happened to Bloch five times amongst 110 abdominal sections, and he also collected 33 cases occurring in the hands of other operators. In 27 cases the bladder was injured during the removal of the ovarian tumors; the others were cases of fibroid tumors. The changed position and appearance are mainly responsible for this accident. The diagnosis of an altered position is very important, but always difficult, and often almost impossible, not only before but also during the operation. Examination with the catheter is not reliable. At times injury to the bladder is not discovered during operation, because the organ may be empty, and even if some clear urine does escape it may be mistaken for serum. In some of the cases described by Bloch the injury occurred in locations where no one would expect to find the bladder. The best treatment of such an injury is to suture at once. The prognosis is not very favorable, as Bloch reports 14 deaths amongst 36 cases, but in some of these death apparently was not due to the injured bladder.

**Cystitis due to Typhoid Bacillus.**—Thomas Houston<sup>61</sup> records the first known case of cystitis produced by a localized unmixed infection with the typhoid bacillus. The cystitis had existed for three years, and repeated careful bacteriological examinations of the urinary sediment showed a pure culture of the bacillus of Eberth.

The case seems of interest for the following reasons: 1. The history gave no evidence that the patient ever had typhoid fever, and the fact that she spent so much of her time in hospital and was under medical treatment at home may be held to exclude any possibility of mistake in this respect. In cases of typhoid fever the bacillus of Eberth is often found in the urine, even some weeks after the temperature is normal. This case is one of typhoid infection without the usual symptoms of typhoid fever, and since there is no point in the history subse-



quent to the commencement of the cystitis three years ago which suggests the occurrence of a new infection, the probability is that the typhoid bacillus has been present from the beginning. When we consider the fact that typhoid bacilli are so easily destroyed by more vigorous forms, such as Escherich's bacillus, it seems highly improbable that at any time during the course of the cystitis the typhoid bacillus has displaced the colon bacillus in the bladder. The acidity of the urine excludes the probability of other forms commonly found in cystitis ever having been present.

2. The blood serum gave a decided "reaction of infection." This shows that the case is not a simple bacteriuria, but that the bacillus has a nidus somewhere, as, for example, in the mucous membrane of the bladder, and thereby has such an effect on the blood and tissues as to cause the serum to acquire the agglutinating power.

3. It seems to follow that in this case the bacillus of Eberth was capable of producing a local lesion without the patient suffering from typhoid fever.

4. The fact that the bacillus can grow in the tissues without any symptoms of enteric fever resulting, and produce there a local lesion, is in favor of the view that this fever is a true general infection, and not merely of local origin, in the Peyer's patches of the intestine.

5. It also proves that the bacillus may occur in the tissues, and the blood serum give Widal's reaction, without the infection which we recognize as typhoid fever resulting.

6. To explain the anomalous fact that we have here a lesion, restricted apparently to the urinary organs, produced by the typhoid bacillus, which has persisted for a very considerable time without any symptoms of typhoid fever, three theories seem admissible: (a) This patient for some reason or other was not very susceptible to infection with Eberth's bacillus, so that when the opportunity for infection occurred a local lesion alone resulted and no general infection. This agrees with the result obtained when a non-susceptible animal is inoculated with a given bacillus. (b) We have here a form of typhoid bacillus which differs in its infectious power from the recognized form of Eberth's bacillus. (c) Typhoid fever is not solely due to the bacillus of Eberth, but other etiological factors must be brought to bear on the patient before the clinical features of typhoid septicemia result. The researches of Sanarelli, which show how the virulence of the typhoid bacillus is increased by the injections of the toxin of the bacillus coli communis, and also those of Sidney Martin, which confirm his results, make it certain that the bacillus coli communis may be directly concerned in producing a virulent typhoid infection in animals.

The persistence of the typhoid bacillus in the bladder possibly for three years appears less remarkable when we recall the cases in which abscesses containing typhoid bacilli have been observed six or seven years after the occurrence of typhoid fever in the patient.

**Extirpation of the Vagina.**—A. Martin<sup>2</sup> discusses the indications for this operation, and describes a new method and a successful case of extirpation of the vagina and uterus for cancer. He first makes an incision encircling the introitus, and then proceeds, without using any instruments, to detach the vagina from the rectum and bladder. After reaching the cervix the uterus is extirpated in the usual manner. The resulting wound is covered with peritoneum, which is stitched to the outside edges, and he then proceeds to obliterate the vagina transversely. The case reported (a woman 61 years old) made an uninterrupted recovery, and six months later there had been no recurrence. Martin states that this operation is exceedingly simple and free from technical difficulties, and should be adopted not only for malignant diseases, but also in cases of extreme prolapse. The author states that during the last two years he has operated on 6 cases successfully which had been unsuccessfully treated by ventrofixation and different perineo-plastic operations.

**Pathology and Therapy of Prolapsus Urethræ.**—Singer<sup>42</sup> describes 8 cases of prolapsus of the urethra from Chrobak's clinic and states that this affection is not so rare as generally believed. It occurs most frequently in children, and women past the menopause. Its cause can generally be traced to angiomata, a relaxed urethra, and to the introduction of foreign bodies. The patient may have no disagreeable symptoms, but usually there exist vesical tenesmus and bleeding from the protruding mucous membrane.

**Abdominal Hysterectomy.**—Funke<sup>43</sup> publishes a report from the University Clinic of Strassburg on the excellent results obtained by Freund from abdominal hysterectomy for cancer of the uterus. The main objection against this operation was the high mortality, which, according to Kaltenbach, amounted to 67 per cent. Freund's statistics until 1894 showed a mortality of 33 per cent, but since then he has operated in 20 cases with a mortality of only 20 per cent. Funke states that in all cases of advanced cancer of the uterus abdominal section should be made and that the uterus, with the adjacent interstitial tissue and glandular structures, should be entirely extirpated.

**Torsion of Pedicle in Salpingo-ovaritis.**—In discussing this subject after reporting 3 cases, H. Hartmann and E. Raymond<sup>44</sup> state that pain at the seat of the lesion, sometimes relieved by pressure, is usually the first subjective symptom. The tumor increases rapidly in size. Metrorrhagia does not seem to be caused by the torsion. Neither the direction of torsion nor the number of turns is constant. The affected organs are usually previously diseased, but in one case reported torsion of healthy appendages occurred during pregnancy. So few cases have been reported that it is not possible to explain the mechanism. It seems to depend, however, upon the form of the tube, which possesses a long and yielding pedicle, with an extremity which is large and heavy on account of increase

in size of the tube near its outer end or of its adhesion to a hypertrophied ovary. It may depend also upon modifications in the size and situation of neighboring organs, as in the case of a fibroid or pregnant uterus. Adhesions seem to act chiefly in fixing the tube in its abnormal position.

**Sclerosis of Broad Ligaments, etc.**—Keiffer<sup>46</sup> reports a case of atrophy of the vagina, uterus, bladder, and broad ligaments in a virgin 39 years old. While such a sclerotic condition is not uncommon in cases of uterine fibroid, the instance reported showed the presence of only a small tumor of this character in the anterior wall of the uterus.

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## DISEASES OF CHILDREN.

**Acute Diphtheroid Angina due to Leptothrix.**—Henri Meunier<sup>1</sup> and M. Bertherand<sup>1</sup> report a case of a child of 3 years, previously well and never having suffered from any angina with exudate, who at the onset of scarlatina had a pseudo-membranous angina which presented all the characteristics of diphtheria and was treated as such. Repeated bacteriological examinations failed to reveal the Löffler bacillus, but demonstrated the presence of a special parasite, a leptothrix (possibly the leptothrix buccalis). The authors were unable to produce the same lesion in an animal as in the patient by means of this micro-organism, and yet, in spite of their non-success, they have no doubt that the filament played a pathogenic rôle, as it is otherwise impossible for them to understand certain special characteristics revealed by their bacteriological experiments. The appearance of the preparations, where, *to almost entire exclusion of all other bacteria*, swarm numberless colonies of the leptothrix; the presence of a thick layer of

this micro-organism in the superficial layers of the false membrane; and the superabundance of its colonies in the culture media, are three arguments which would not fail of persuasion were the organism one of those already recognized in anginas instead of the exceptional parasite under discussion. To be convinced of its agency we only need proof of the fact that this common saprophyte can sometimes become pathogenic. This proof we already possess, for although leptothric mycosis is not identical in its anatomico-clinical form with what these authors describe, it yet differs from it only in degree, only by the distance separating an acute from a chronic infection. Certain cases of chronic pharyngitis have been described in which the pathogenic agent would appear to have been a leptothrix. The writers have collated about 40 cases, which even constitute a morbid entity known as leptothric pharyngomycosis. It is not clinically similar to the case here reported, but it shows the possibility of pathogenic action upon the pharyngeal mucosa by the leptothrix. As to the reason why a micro-organism which is so constantly present in the buccal cavity should in certain cases become transformed from a benignant to a malignant agent, the authors do not venture an opinion, but suggest further research as very desirable.

**Anemia in Nursing Infants.**—A. B. Marfan<sup>2</sup> discusses this subject, laying especial emphasis upon splenic pseudo-leukemic anemia. In the infant, as in the adult, the disease is characterized by a diminution in the number of red corpuscles and of hemoglobin, and is manifested externally by pallor of the skin and more or less pronounced discoloration of the mucous membranes. At this early age, however, there are some special features which give added interest to its study. The author has observed no idiopathic cases. All were secondary to subacute or chronic infective diseases: to gastro-enteritis, especially that accompanying rachitis; to subacute broncho-pneumonia; prolonged pyodermitic adenoid vegetations with suppurating surface (with or without otitis); tuberculosis; or to syphilis. In very young children anemia does not cause cardiac or vascular souffles; these are not found until after 3 years of age. There are two special characteristics of anemia in nursing infants: First, it is often accompanied by hypertrophy of the spleen, liver, and lymphatic ganglia, which is doubtless due to the fact that it is so often secondary to the infectious diseases. There is, however, no particularly intimate connection between the degree of anemia and that of the enlargement of these organs. Second, the blood is usually modified in a manner rarely found in the adult. As in the latter, there is first a diminution in the number of red corpuscles and of hemoglobin. The number of hemoblasts diminishes in severe forms of the disorder. Leucocytosis is intense, and, according to Monti, the density of the blood generally is diminished. The special characteristic is the habitual appearance in the blood of *red nucleated cells*, which in the adult are found only in cases of great severity,



which terminate fatally. The younger the child the more frequent their appearance. During fetal life there are three fairly distinct phases in the histogenesis of the hemoglobin-carrying cells. In the embryonal period of the first three months the red cells appear, the peripheric layers form the blood-vessel walls and disappear, and the central cells take on hemoglobin and gradually become of a yellowish-red color. They have a distinct nucleus. They multiply rapidly by karyokinesis. In the second stage the blood loses its embryonal character and becomes fetal or mixed; that is to say, that it contains both nucleated red cells and cells without a nucleus, like the adult cell. The nucleated cells gradually diminish in number, while the red corpuscles increase. In the third stage, when the blood vessels are completely formed, the production of red cells appears to be limited to certain places which remain their source, as the marrow of bones and perhaps the spleen. After the seventh or eighth month of intrauterine existence nucleated red cells are no longer found in the blood. It is very doubtful whether there is any direct relation between the anemia of infants and any lesion of the hematopoietic organs, but very probable that the latter is related to the leucocytosis and to the presence of the red nucleated cells. Leucocytosis is frequent in infective diseases, and its chief source is the spleen, lymphatic glands, adenoid tissues, and the marrow of bones whose activity is stimulated by the toxic infectious condition. The presence of the red nucleated cells depends upon the toxic infectious irritation of the marrow and spleen, and probably also of organs like the liver and lymphatic ganglia, which during fetal life were generative foci of red nucleated cells. As Ranvier states, all inflammatory conditions tend to cause a return of the tissues to a fetal or embryonal condition. The younger the tissues the more marked is this tendency. The anemias of nursing infants do not constitute a protopathic condition. They are simply a symptom of the cachectic condition due to subacute or chronic infective disorders. The author reports at length two cases of pseudo-leukemic splenic anemia following rachitic gastro-enteritis. In cases of slight anemia the prognosis depends upon the concomitant symptoms rather than upon the condition of the blood. But when an examination of the blood shows profound anemia, and when this is accompanied by enlargement of the liver, the prognosis becomes very grave. Treatment should be addressed to the causative disorder. In very severe cases and in early infancy iron and arsenic are of little value. Very recently opotherapy has been tried. In the 10 cases reported by the author the administration of extracts of spleen gave no results. Perhaps the splenic tissue employed should be that of very young animals. M. Caube, of Lausanne, successfully treated 10 children suffering from severe splenic anemia by giving them the marrow of the bones of young animals.

**Clavicles, Absence of.**—Congenital deficiency of the clavi-

cles is extremely rare in man, and in animals using the upper extremities for prehensile purposes. In non-prehensile mammalia and in herbivora and carnivora the clavicles are either rudimentary or absent. In birds they are well developed. Carpenter<sup>20</sup> records the case of a girl of 8 where the absence of the clavicles was discovered accidentally, and where five other members of the family showed clavicular defect. In this case the clavicles were represented by two small fragments, thin, tapering, and cartilaginous, attached by their broader extremities to the sternum. The left was longer than the right, their respective lengths being one and a quarter and three-quarter inches. On the index finger being pressed behind the outer extremity of either fragment, the fragments could be dislocated so that their direction was nearly straight forward. In this position a depression of the lower part of the sternum was evident, and the sternum was seen to be unusually wide at its upper part. As the child stood upright the shoulders were obviously narrowed; they fell downward and forward, the scapular angles projected backward to a marked extent, and under the acromion was seen a depression as in a subglenoid dislocation. What appeared to be the first rib could be felt with great distinctness on either side, as also the coracoid processes. Between each coracoid process and acromion was a well-developed coraco-acromial ligament, and so apparent were these ligaments that they raised the suspicion of acromial clavicular fragments. The sterno-mastoid muscles apparently had some attachments to the fragmentary sternal clavicles. The clavicular portions of the great pectoral muscles were wanting, but the pectoral portions stood out well when placed in action. The anterior portions of the deltoid muscles were also wanting, as also were the clavicular fibres of the trapezius muscles. The child was thin and her muscles were not well developed, but she was not by any means wanting in power. She could carry the youngest child, a well-developed infant a year old, could push and throw well, and could bear the weight of her body when hanging by her hands. She could approximate her shoulders to an extraordinary extent with the greatest ease. Another position (Fig. 1) was assumed and retained with the greatest ease. Here the arms were crossed behind the head, the elbows pointed upward and, as may be seen, several inches apart. The scapular borders could be made to touch behind and even to overlap. By muscular action the shoulders could be made to touch the ears. She could also approximate her arms in front of her body quite as readily, the elbows being placed anteriorly. This is seen in Fig. 2. It was found necessary in this instance to tie her arms together for photographic purposes, as without assistance the forearms and hands became blurred from want of steadiness in this position. When her arms were extended above her head (see Fig. 3) the tops of her shoulders looked downward and the scapular angles projected posteriorly at a much higher level. The elbows and the ulnar borders of the arms looked

forward. The neck was bent and the head projected forward. The father of the child had deformed clavicles, the bones being

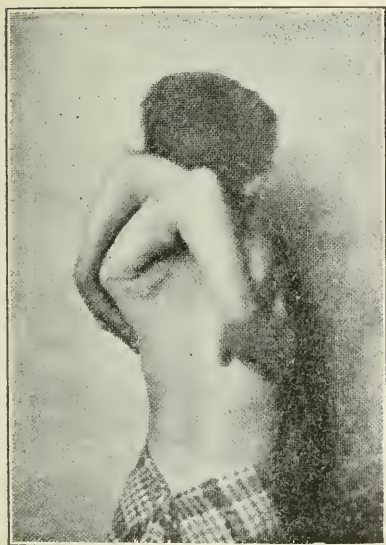


FIG. 1.

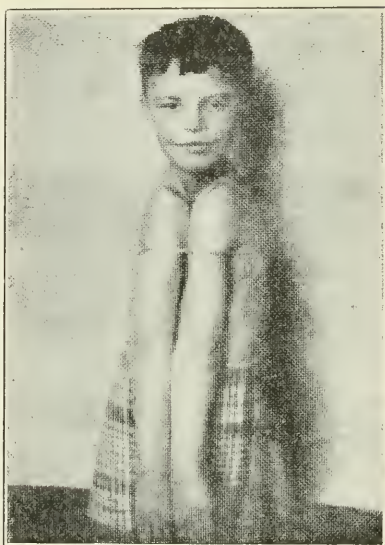


FIG. 2.

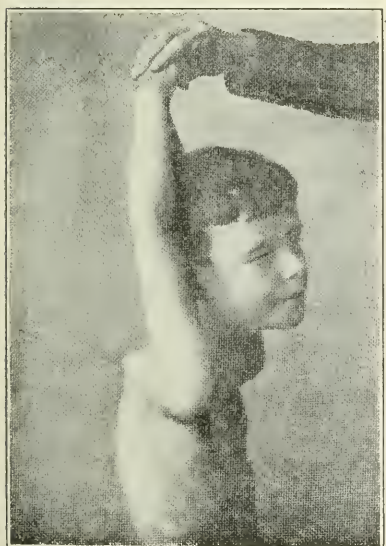


FIG. 3.



FIG. 4.

divided in the middle third. The brother of the patient presented a prominent arching forward of the clavicle on the left



side, and on the right it was divided. In another brother both clavicles showed a peculiar kink where the fragments in the other cases separated. A sister showed a solution of continuity in the right clavicle. Another brother had a deformed right clavicle. Another case is reported by Schorstein<sup>20</sup> where, as in the cases of Carpenter, the amount of inconvenience was so small that neither the patient nor her mother was aware of anything odd until it was pointed out to them. On examination it was found that there was practically no ordinary movement which the child could not carry out well. She can lift a heavy weight right above her head with ease. She can give a fairly heavy blow from the shoulder and can lift her body when suspended by the arms. The additional freedom of movement enables the two acromion processes to be brought into contact anteriorly in the middle line, as shown in the photograph (Fig. 4), and allows her to twist her arms behind her back much more readily than usual. References are given to cases reported by Kappeler and Todd.

**Club-hand.**—B. E. McKenzie<sup>3</sup> presents some cases of this malformation, with photographs. He believes that in the treatment of these cases one must be guided by the individual conditions found present. When the radius is absent the best procedure yet described is to perform free tenotomy and fasciotomy in the angle formed by the hand and arm, and, having forcibly extended, to retain for several weeks in a fixed dressing. Subsequently the end of the ulna should be freed and implanted in a cavity prepared for its reception in the centre of the cubital aspect of the carpus. Afterward much gain in usefulness may be obtained by attention to the education of the defective hand by forcing its employment in play and in the ordinary duties of life. At night a well-fitting light brace will easily retain the hand in full extension.

**Colitis.**—L. Guinon<sup>4</sup> gives the following indications for the treatment of this disease in children: 1. To combat the neuro-pathic tendencies of the little patient, give frequent and prolonged baths, and tepid enemata every day; avoid fatigue, and walking especially if it causes intestinal pain. 2. Regulate the diet with great care. (a) If constipation be present give vegetable soups, boiled meat, boiled fish, dry vegetables, cooked salads, and cooked fruit in abundance. This diet will only imperfectly combat the constipation because of the necessity of avoiding irritation of the intestines. (b) If there be diarrhea a diet of sterilized milk is sometimes indicated, but in some cases it is not well tolerated and increases the difficulty. We will then have to give thickened milk, bread boiled in water, soft boiled eggs, young and well-minced meat, boiled chicken and fish, raw pounded mutton, potato and bean purées. Only the crust of bread can be taken, but biscuits and toast may be given. If digestion is affected it may be well to give hydrochloric acid with a little opium. 3. The inflammation of the large intestine is to be treated by hot baths every two or three days. Hot compresses morning and



night upon the abdomen are of great benefit. Lavages of boiled warm borated water (2 : 1000) clean the mucosa and help to overcome the stenosis sometimes found in the sigmoid flexure. 4. For pain and colic the hot compresses and baths are useful. 5. Intestinal putrefactions should be modified by calomel either in purgative or in small divided doses. Benzonaphthol, combined with betol or bismuth salicylate or magnesnia, assists its action. 6. The acute attacks of enteritis must be treated. 7. In spite of all this treatment, if the child is constipated, it is in constant danger of relapses. Enemata are seldom sufficient; lavements are better, but frequently have to be supplemented by enteroclysis with oil. The best laxative is castor oil in small doses. Gentle massage is of very great value.

**Cretinism.**—Christopher Graham<sup>5</sup> reports a case of the disease with some remarks. He believes that the capabilities of treatment are: 1. Removal of the myxedematous condition. 2. Quickening physical development. 3. Awakening the intellect. The myxedematous condition is rapidly and often fully reduced, thus removing the most unsightly symptoms. Physical development is rapid, and, perhaps, the most marked and remarkable effect of thyroid feeding. This is seen especially in the long bones; and so profoundly does treatment affect the tendencies of growth, though years have elapsed since growth was manifest, it is again remarkably quickened. The mental condition is slowest to respond, and it is difficult to say how far we may reasonably expect such development to obtain. However, cases are reported where improvement has been apparently complete, and many where comparison with the normal is favorable. Speech is favorably affected, words and sentences being gradually acquired where language consisted formerly of harsh and rasping sounds.

**Diphtheria.**—Under the title "Remarks on Antitoxin, Diphtheria, the Practitioner, and History," Adolph Rupp<sup>6</sup> inveighs against the present widespread adoption and indorsement of antitoxin. He claims that it was forced rather than argued into the hands of practitioners by a public opinion created by the voices and pens of many prominent scientists and clinicians and the lay or political press. A practitioner in dealing with his patient must do all the good he can, and, if possible, no harm of any kind. It is his duty to give considerate attention and study to observations and facts, opinions and fancies, even when they do not fall in with his personal observations and with facts as he sees them. But it is his right to trust his own senses and his own reasoning powers. Although many able practitioners and scientists claim that antitoxin for diphtheria has ceased to be a question, other equally able observers claim that it is a fact that the remedy is useless and at times harmful. There are three sources open to all practitioners from which to gather facts and opinions for justifying their own ways of thinking and practice—history, laboratory reports, and clinical experience. The author in this paper

directs attention to the historical or traditional conception of diphtheria, comparing it with present-day notions. It is now defined as being an acute infectious disease. It was always considered to be that. But modern teachers say in addition that it is caused and developed by the growth of a specific bacillary organism, and this bacillus now claims almost undivided attention. The disease used to be supposed to be primarily constitutional; to-day our teachers say that a general disease is produced which is secondary to the local one. In days gone by the eye made the diagnosis—no deposit, no diphtheria. This conception is the result of centuries of observation and correction. Our scientists at present tell us that we have diphtheria when we have a sore throat in which the Klebs-Löffler bacillus is found, the presence of a pseudo-membrane being of secondary importance. The author considers this conception of diphtheria as clinically inadequate, although it may do very well for the laboratory. In the laboratory excellent results are obtained by the use of antitoxin. The scientist overlooks the importance of the historical conception of diphtheria, and he overlooks the importance of other bacilli at work in the local uproar. In statistics gathered about diphtheria, Dr Rupp complains that unlike things are contrasted, quoting the figures given by the Health Department of Boston. From 1891 to 1894, 1,062 cases were reported, cases diagnosed by the eye and by other traditional methods. From September 1, 1895, to October 1, 1896, 1,972 cases were reported, a large number being discovered among the "pupils of the public schools and by bacteriological tests in otherwise unrecognized cases." This is not clinical diphtheria, and consequently the decrease in the percentage of mortality in these cases does not prove the value of the antitoxin used. So-called science has only increased the figures of the old disease. The author promises in a future essay to discuss the practical arguments and supposed facts which some clinicians and scientists claim do prove that antitoxin is the remedy for diphtheria.

**Endocarditis in the Child.**—Léon d'Astros' reports three cases of this affection, the first one due to erysipelas, the second to grippe, while the third followed an attack of diphtheria. In a consideration of these cases he raises the question whether erysipelatos endocarditis is due to a generalization of the affection and to entrance of the staphylococcus into the blood. This is a difficult point to establish during life, because the streptococci in the circulation are very rapidly destroyed by phagocytosis. It has been possible after death to demonstrate the presence of streptococci in the vegetations of infectious endocarditis complicating erysipelas. On the other hand, in two cases of simple endocarditis occurring in the course of erysipelas, Achalme was unsuccessful in his endeavor to find the streptococcus in the blood during life. The author had an equal lack of success. He does not consider the evidence conclusive, because the experiment was made rather tardily, when the mitral lesion had certainly existed for more than forty-

eight hours. The general infection may have been of short duration. The development of endocarditis during grippe is even more difficult to interpret, because the primary infection by Pfeiffer's bacillus is often followed by secondary infections with streptococci, pneumococci, etc. In the case reported by the author there was a broncho-pulmonary affection of small extent, but of considerable duration, which it is barely possible may have been the intermediary agent between the grippe and the endocarditis. In the third case the pathogenesis is more easily determined. The slight attack of diphtheria in a child of 10 months had been cured for several days, when a secondary attack with staphylococci supervened and the patient succumbed. The disease was at first situated in the throat and the naso-pharynx, and then invaded the bronchial tubes, and later the blood, as was amply demonstrated by bacteriological cultures. The endocardial lesion was the consequence of this general infection.

**Exanthem following the Injection of Behring's Serum.**—Dr. Herrman Teufel<sup>\*</sup> wishes to call attention to an extremely marked eruption following the injection of Behring's serum (No. 2). Ten days after the injection, when the child had recovered from the diphtheria, she had a rise of temperature, marked acceleration of pulse, and general malaise. About four centimetres external to the spot at which the injection was made there was infiltration and discoloration of the skin. This discoloration extended outward a distance of ten centimetres and was a dirty greenish-yellow hue. Beyond this was a deep red zone one centimetre in width, the skin beyond gradually becoming normal. Both legs were swollen from the groin to the toes. The skin was like a board, resembling sclerema neonatorum. An eruption was found on both extensor and flexor surfaces, each lesion consisting of a deep red central spot surrounded by a greenish-yellow zone one and a half centimetres wide, and this again surrounded by a pink outer zone. The outer zones of the various lesions touched. This lasted two weeks. The two older sisters, who had received an immunizing dose of No. 1 serum, had similar but less extensive exanthemata.

**Hysteria.**—N. P. Barnes<sup>\*</sup> discusses this disorder as it occurs among children. He thinks that many attacks in the young are of the contagious form, the sight of a hysterical person often producing the same symptoms in other persons of susceptible nervous organizations or hysterical tendencies. Heredity plays an important part in the etiology; not that a child inherits hysteria, but that it can inherit a weak, excitable, and irritable nervous system. Location is an etiological factor, city life being productive of nervous conditions on account of the activity, noise, and depressing atmosphere. Mental and physical disturbances are prominent causes of nervous disorders and may produce this effect as early as intrauterine life. Improper feeding, unhygienic surroundings, and injudicious management tend strongly to the development of hysteria in a

child. The treatment may be summed up as follows: Hygienic surroundings, proper management, rest and isolation, suggestion and hypnotism, and drugs as indicated. The earlier the diagnosis and treatment the more favorable the chances of recovery.

**Inguinal Hernia in Children, Radical Operation for.**—H. Huitle<sup>10</sup> looks upon the operation in children as quite as simple a procedure as in adults. The bowels are kept freely open until within twenty-four hours of the operation, when a powder of bismuth and Dover's is administered. Huitle employs Bassini's method because of its simplicity and reliability. The secret of success lies in placing the ligatures sufficiently high. In making the posterior wall he employs silkworm gut and uses a dull round needle. The author furthermore cautions against drawing the thread too tight, for if this is done an anemia of the tissues ensues, which favors suppuration. An antiseptic is applied, and rubber tissue is employed to keep the urine from infecting the part. Frequent changing of the dressings is necessary. In most cases the stitches may be taken out on the fourth or fifth day. The author advises the radical operation if a truss does not effect a cure in a year.

**Metrorrhagia in Young Girls.**—André Castan<sup>11</sup> observes that certain forms of treatment found useful in some cases in the adult do not seem to be appropriate in the treatment of young girls. Such are ligature of the uterine arteries, resections of the mucosa in cases of angiomatous degeneration, and total hysterectomy. Amputation of the cervix is rarely of value. Curettage has sometimes given good results, but as a rule is useless because applied to a mucosa which has sustained no lesion; when successful this is probably due to derivation of pelvic congestion, to straightening of uterine flexions, to normal reposition of the cavity permitting a physiological flow of the blood. Antiseptic vaginal injections are to be recommended; they have sometimes been accused of producing a vascular congestion capable of increasing the hemorrhage, but the flow of water should not be strong. Permanganate is better than bichloride. Hemostasis is not to be resorted to except in extreme cases where death is threatened. By arresting the hemorrhage we favor the absorption of the toxic substances of the menstrual blood. Ergot, from its tetanizing action upon the uterus and other dangers, ought to be banished from therapeutics. In case of threatening hemorrhage only, we may use ice, hot injections, and rest in bed with the head low. General treatment is of the utmost importance. Hydrotherapy in all its forms, with massage and rubbing the body with a horsehair glove, is excellent. Bathing resorts, and sea baths properly taken, are good. Moderate exercise, the bicycle, gymnastics, and an open-air life are favorable hygienic conditions. Iron, arsenic, and iodine may be given in spite of their vaso-dilator action. The digestive functions should be carefully attended to, and especially should constipation be overcome by the long-continued use of saline purgatives in small doses and by the frequent use of enemata.



**Movable Kidney in Childhood.**—J. Comby<sup>1</sup> reports 18 cases, personally observed by him, of this disease, which is considered so rare in childhood. Sixteen occurred in girls and 2 in boys. Age has no apparent influence, the affection being found in the newly-born, in nursing infants, and in adolescents. It is difficult to avoid the conclusion that it may be congenital when found in young infants, for nothing in the first weeks or months of life could occur to cause the displacement. It is probably hereditary in some cases, having been noted in the case of a mother and daughter, or a father and son. In the hypothesis of congenital movable kidney it must be held that the pedicle of the organ is too long to hold it in place, and that some special occurrence dislodges it, such as violent straining, blows, falls, the constriction of a tight corset or belt, repeated pregnancies causing relaxation of the walls, congestion of the liver causing enucleation of the kidney from above downward, etc. These causes cannot be invoked in the case of movable kidney found in the first few months of life. In dyspeptic children with large abdomens, dilated stomachs and congested livers, relaxed bowels, dilated natural orifices and weak sphincters, hernias and rectal prolapse, it is easy to comprehend the visceral ptoses to which bad artificial feeding and the consequent gastro-enteritis may lead. The child is not squeezed externally by a corset, but is distended internally by gas developed in the stomach and intestines. This mechanical cause may explain nephroptosis. Comby holds that movable kidney is not so exceptional as is usually supposed, but is often latent and must be sought for to be discovered. Its symptomatology is anything but marked. There is seldom pain, scarcely any inconvenience, or perhaps merely some dyspepsia. Yet sometimes there will be pain of more or less intensity to attract the physician's attention and lead to a discovery of the trouble. In one of the author's cases the kidney was not only sensitive, but by its displacement it interfered with the flow of urine and caused a hydronephrosis; it had to be fixed in place by means of a surgical operation. In another case there were painful attacks of peritonitis, and nephrorrhaphy was suggested but not performed. In time the kidney formed solid adhesions and lost both its mobility and sensitiveness. In several cases the pains were of sufficient intensity to lead to the suspicion of appendicitis. The pains may be continuous or paroxysmal. Later, when young girls begin to menstruate, the nephralgia may regularly accompany the menstrual flow. Hydronephrosis from backward displacement of the kidney and compression of the ureters has been alluded to. Inflammation of the kidney or of the cellular tissue surrounding it, pyelonephritis and perinephritis, are more rare; hematuria is still more rare. In nervous and hysterical young girls there may be abdominal pains radiating to distant parts, symptoms of false peritonitis, false intestinal occlusion, incoercible vomiting, obstinate constipation, threatened leipothymia. But all these symptoms soon disappear. As a rule there are no symptoms, and the physical diagnosis alone determines the pres-

ence of the affection. The child is placed on its back, its limbs relaxed, the head rather low, the thighs flexed upon the pelvis and the legs flexed upon the thighs, and is told to open the mouth and breathe deeply. The physician, standing on the patient's right, glides his right hand under the lumbar region, palpating the right flank. If the kidney is out of place he will soon feel between his two hands an oval, reniform, movable, indolent mass, which can only be the kidney. It may be extremely movable, or it may be prolapsed and carried toward the front without being movable. Careful examination should be made in all directions, upward and anteriorly toward the liver, in front and centrally toward the umbilicus, and below toward the iliac fossa. Displacement of the left kidney is altogether exceptional. Once displaced the kidney stays so, but this condition is perfectly compatible with perfect health. But in some cases it causes severe pain and disturbance of function. It is nearly always accompanied by digestive disorders. In the diagnosis it is possible to mistake a *coprostasis* for a movable kidney; a purgative will settle the question. *Appendicitis* will be recognized by the localization of the pain between the umbilicus and the anterior superior spine of the ilium, the fever, vomiting, and constipation, and the recent origin and short duration of the symptoms. *Tabes mesenterica* gives a sensation of hard, rounded multiple masses deeply situated in the abdominal cavity. Lesions of the kidney, such as pyelonephritis, perinephritic phlegmon, hydronephrosis and cysts, and sarcoma, will be recognized by careful examination. They may affect a displaced kidney.

If the displacement cause no unfavorable symptoms no special treatment is necessary. Hygienic measures only will be prescribed: the clothes must be flowing and loose, not compressing waist or viscera. Dyspepsia and constipation must, of course, be appropriately treated. Rest in bed is the best treatment for the pain. If the kidney causes discomfort by its malposition it must be supported by a flannel bandage passed about the body several times, supporting the whole abdomen and lifting the kidney. If the pain becomes intolerable, if there are crises resembling peritonitis or strangulation, if the urinary function is interfered with, and if intermittent or permanent hydronephrosis occur, surgical procedures will be necessary; the kidney must be brought into position and fixed by ligatures to the posterior abdominal wall.

**Pericarditis in Children.**—A. Baginsky<sup>12</sup> says that of late years the idea of the rather frequent occurrence of pericarditis among children is generally acceded to; in fact, it is suspected that this disease is more frequent among children than adults. The author gives a summary of 64 cases that had come under his observation during the preceding year. In 24 cases the underlying cause had been articular rheumatism, in 11 cases tuberculosis, in 11 cases pleuro-pneumonia, in 7 erysipelas and phlegmon, in 5 instances severe diarrhea, 3 times endocarditis, meningitis, diphtheria, and otitis media. A subdivision into the serous, fibrinous, hemorrhagic, and purulent forms of the

disease is made. The well-known clinical picture of the serous cases is given. No symptom is looked upon as diagnostic. On making a physical examination the author considers it extremely difficult to make a diagnosis from percussion. The heart is enlarged to the right, and the writer objects to the generally accepted idea that the area of increased dulness varies with the position of the child; he maintains this to be an anatomical impossibility, because in the child the heart is more horizontal than in the adult and rests upon the diaphragm. The author says pericardial friction sounds over the base is the only trustworthy evidence of the disease on physical examination. Purulent pericarditis is even more difficult of diagnosis than the simple form, as the symptoms are masked by those of the primary disease. This form was found in extremely young infants. Various bacteria were found—colon bacillus, strepto- and staphylococci, also pyocyaneus. When pericarditis complicates tuberculosis it assumes a very malignant form. The most frequent form of pericarditis is that accompanying articular rheumatism; it is now thought that the heart is frequently involved, and, if at all, at an early stage of the rheumatic attack. After the first attack the heart rarely returns to its normal size, but remains large, and pericardial adhesions are formed synchronously with the dilatation of the heart. In each succeeding attack the adhesions increase in extent and the heart also enlarges, until we have an enormously enlarged heart with a generally adherent pericardium. Baginsky gives a very grave prognosis, cases rarely surviving puberty. In the matter of treatment, he finds salicylates are useless. Diuretin combined with digitalis, and occasionally with strophanthus, are the only drugs recommended.

**Pertussis, Cerebral Disturbances in.**—E. Schreiber<sup>13</sup> relates the case of a child 2 years old who in the course of a pertussis had convulsions; for these an opiate was administered. Each paroxysm of coughing was preceded by a convulsion in all extremities. The convulsions continued notwithstanding the opiate, and two days later, during a violent fit of coughing, the child suddenly became apathetic, lost its power of speech; the pupils failed to react; other reflexes were absent. There was a paralysis of the right side of the face. The child vomited ceaselessly and lost control of the sphincters. The child began to improve in a week, and after two weeks tried to speak and attempted to stand. There was eventual recovery. The author looks upon the case as one of hemorrhage of the cerebral meninges. A full table of similar recorded cases is given. The writer accounts for the rarity of these cases in children by the fact that the arteries in childhood are extremely elastic and allow of sudden and great increase in arterial tension. The vessel walls in childhood in very few instances show any changes of arterial sclerosis.

**Pseudo-tetanus.**—A case is reported by Th. Escherich<sup>14</sup> A female child, age 5 years, was brought to the hospital in a seeming state of tetanus. There were tonic contractions, lasting from a few minutes to an hour, day and night. The child

gradually assumed the typical arc or circle position—the position of marked opisthotonos. During these attacks the child became cyanosed, was kept alive by oxygen, and rectal feeding was resorted to. The child slept very little for twelve days and nights. Contractions gradually became less marked, and in six weeks the child was well. During the illness the patient spoke rarely and with great difficulty, and there seemed to be a spasm of the esophagus. Sensibility to galvanism was not increased. Skin and patellar reflexes were exaggerated. There was very little pain. Author differentiates the case from true tetanus. The unusual length of the attack and the severity of the convulsions, together with the marked contractions of the maxillæ, caused the case to simulate true tetanus.

**Relapse in Scarlatina.**—Richard D. Kennan<sup>16</sup> remarks that one is struck, in looking up the literature of scarlatina, by the fact that the text books of even recent publication contain little or no reference to the occurrence of relapse. Indeed, they are fairly unanimous in the opinion that a relapse, or second attack, of scarlatina is to be ranked among the very exceptional experiences in medical life, and that when it does occur it is invariably after some years have elapsed since the first attack. But second attacks taking place so soon after the first as to be actually called relapses were not seen apparently till recent years. It is not reasonable to suppose that such an occurrence, evident as it now is, could have been overlooked by the many careful observers who had been attracted by the study of scarlatina. Nor is it probable that the character or life history of this fever is very appreciably changed. It seems as if the practice, which has grown up with the modern developments of public health administration, of isolation of dangerous infectious disease in large hospitals, is directly responsible for it. This may require a word of explanation. In private, and in all cases before isolation on a large scale as at present carried out was thought of, each patient was subjected to an ever-diminishing intensity of infection. He was himself daily becoming a lessened source of danger to others and also to himself. In a hospital ward, however, in which the atmosphere and contents are kept, by the constant introduction of acute cases, charged with infective material, this diminution or attenuation is not obtained. The patient whose attack has left him with but slight protective power may fall a victim to a second attack. Of course it is not to be understood that this is by any means a common occurrence, yet Dr. Caiger, Superintendent of the Southwestern Fever Hospital, under the Metropolitan Asylum's Board, found that a true relapse or early second attack occurs in 5 per cent of all scarlatina cases admitted to the hospital. To obviate this risk it has been suggested to keep certain wards set apart for the reception of acute cases, others to which these cases will be transferred when becoming convalescent, and others again in which the convalescents will be placed for some time prior to their discharge from the hospital.

**Spina Bifida.**—J. Collins Warren<sup>16</sup> reports two cases success-



fully treated by operation. He remarks that the difficulty of obtaining complete asepsis in cases of operation for the relief of this condition in infants is very great, as the seat of the spina bifida is in the lower dorsal or sacral region. Primary union is also interfered with by the ulceration of the integuments which exists in many cases owing to the great tension of the part and thinning of superficial skin.

**Temporary Teeth.**—W. H. Hall<sup>17</sup> presents a plea for the preservation of the deciduous teeth, as they are needed for masticating purposes. If badly decayed that process is interfered with and the breath is contaminated, the fetor entering the lungs; also, the vitiated saliva mixed with the food passes into the stomach. Decay involves the pulp, causing pain with more or less general nervous disturbance; finally, death of the pulp occurs, resulting sooner or later in suppuration and adding another objectionable element to the contents of the stomach. The death of the pulp portends further trouble, because the physiologic process of resorption of the roots ceases, and these roots, minus crowns, sometimes remain for several years, deflecting the permanent teeth from their course or crowding them from their position in the arch. The evils of premature extraction are possible irregularities of the permanent teeth and absorption of the alveolar process, and consequent contracted condition of the maxilla by reason of arrested development, thus permitting the contiguous teeth to move toward one another, closing the space, resulting in disalignment, impaction, or prevention of the eruption of the permanent tooth. Premature extraction may also cause the destruction of the germ of the permanent tooth.

**Teratoma Colli.**—H. Brunker<sup>18</sup> reports a rare case of this disease. The tumor consisted of a large mass on the right side of the neck, extending inwardly to the anterior border of the sterno-cleido-mastoid, upward to the zygomatic arch, downward to the third rib, and outward to the mastoid process. The skin over the mass was stretched, the tumor fluctuated, and here and there a hard nodule was palpable. Macroscopically the tumor was made up of cysts varying from the size of a lemon to a pinhead; the walls of the larger cysts were very thin, those of the smaller ones thick. The inner walls of the large cysts were corrugated, those of the small ones smooth. The contents of the larger cysts was partly a colorless and partly a yellow liquid; that of the smaller ones was colloid matter. The microscope showed various embryonic tissues, embryonic brain substance, fat, cartilage, striped muscle, glandular tissue, rudiments of an eye, etc. The infant was only a few months old. The author has found no case like it on record.

**Therapeutic Suggestions for Children.**—Louis Fischer<sup>3</sup> devotes an article to the consideration of those diseases which require immediate and sometimes heroic treatment. In the treatment of convulsions we should seek to remedy the trouble by removing the cause, if possible. Thus a history of an overloaded stomach, with a consequent high temperature and pto-

maine poisoning, and the absorption of this poisoning-causing toxemia, will call for, first, cleansing of the stomach with lavage, using a normal saline solution. Meanwhile a strong mustard foot-bath can be used to relieve the cerebral hyperemia, and, if necessary, a leech can be applied behind each ear over the mastoid process. After this the colon should be flushed with warm salt water. Hypodermoclysis has been of service to the author in cases of extreme exhaustion following long-continued attacks of diarrhea in which the blood is dehydrated and almost thickened. It is an invariable rule of the writer never to permit a child to retire for the night without a movement of the bowels; consequently, if the infant has been constipated during the day, he advises the injection of one pint of a mixture consisting of two-thirds warm water and one-third glycerin. Another alarming symptom, anuria, can frequently be relieved by a simple procedure—immersion of the child in water the temperature of which is  $105^{\circ}$  to  $110^{\circ}$ , raising and lowering the infant, and continuing the bath for about one minute. It is advisable to notice whether the child passes its water while in the bath. If this does not succeed, dry cups may be applied over the lumbar region for three minutes at a time, and renewed, if necessary, in an hour, but choosing different parts of the region for the application. Dyspnea caused by intense pulmonary congestion is best relieved by application of six dry cups to the front and back of thorax. The same result can be obtained by the application of a sinapism to the front and back of the chest, not on both sides at the same time, however. Massage—gentle friction of the abdomen with vaselin or sweet oil night and morning—is one of the best remedies for stimulating peristalsis in the ordinary form of atonic dyspepsia. The safest antipyretic measure in children is the cold pack, applied by means of a sheet wrung out in cold water and applied over half of the body, or we can take a towel, wring it out in cold water, and thus envelop the chest and abdomen therein, and renew this application every fifteen to thirty minutes. If this does not succeed, the safest method is to immerse the child in a tub of water at a temperature of  $90^{\circ}$  F., and adding cold water gradually until the temperature of the water reaches  $75^{\circ}$  F. The duration of this bath should be from two to five minutes. The child must be rubbed constantly while in the bath, to stimulate the circulation of the blood and prevent cyanosis.

**Tubercular Cystitis in Children.**—Charles Greene Cumston<sup>19</sup> writes that the symptoms of this disease are often so masked in children that the attention of the physician is not directed to the condition of the bladder, and he is of the opinion that microscopical and bacteriological examination of the urine of children should be more frequently resorted to. The symptom that is most prominent in children is incontinence of urine. There may be *true* incontinence, when the urine escapes without producing any desire to micturate; this form is due to a certain amount of destruction of the neck of the bladder by an ulcerative process. A false incontinence varies in nature.

Sometimes it is simply a micturition from overflow, in which case *it is not* an incontinence, but is a retention, and is met with in certain painful forms of cystitis. The neck of the bladder is closed by spasm, and from this a more or less complete retention will result. A real false incontinence is what is particularly seen in children, and is in reality a frequent and very ardent desire to pass the urine, circumstances under which children will micturate in bed at night and in the clothes during the day. The escape of the urine is voluntary, because the patient can be made to retain his urine in the bladder for a few minutes, but the desire to urinate is so imperious and constantly present that the child yields to it. Incontinence of urine from overflow may also be observed, along with a more or less complete retention, this being due to spasm of the urethra. Pain as a symptom varies and often is wanting, or at least appears to be. Severe pain will make children cry, while they do not pay much attention to little dull pains or burning sensation. Hematuria appears as an infrequent symptom, and does not show itself at the beginning as it does in adults. Pyuria, on the contrary, is important in little ones, because if the urine contains pus the disease is not due to a neurosis. In exceptional cases the urine contains no pus. In all cases of suspicious cystitis a bacteriological examination of the urine should be carried out. The search for Koch's bacillus will often be negative, but should be often repeated, and finally we can, perhaps, discover the organism. As to cystoscopic examinations the author believes that tubercular ulcerations have nothing that one could call typical. We may say that the primary disease in children is curable when the lesions are not advanced. If general treatment and local application do not show any effect on the process after a reasonable trial, suprapubic cystotomy is the operation of choice, and will be followed by as good results as those obtained by it in adults.

**Ulcerative Stomatitis.**—A. Kissel<sup>13</sup> gives a new treatment for this affection. After trying all the much-vaunted remedies the following treatment was decided upon and used for a number of years in many cases: A three per cent boracic-acid mouth wash is used every hour, and three times a day the entire oral cavity is washed out with this solution, a saturated tampon being employed. This method suffices for the average case, but for obstinate cases the following method was employed: The ulcers on the gums, tongue, and buccal mucous membrane are curetted with a sharp curette; the surface of the wounds is then touched with iodoform powder. In addition the boracic-acid tampon and mouth wash are employed as in the milder cases. This treatment has been employed satisfactorily in the hospital and clinic. Great care must be taken to remove carious teeth. In private practice the simple treatment as a rule suffices, but occasionally the curette must be employed. The curette is never applied more than once, the iodoform daily until the size of the ulcer begins to diminish, which is always in a very few days.

**Vesical Calculi in Children.**—The symptoms of this affec-

tion in childhood, says d'Arbois de Jubainville,<sup>4</sup> are rarely the same as in adult life. One of its chief characteristics is its insidious nature. In fact, the greater number of patients aged 14, 15, or 20 years upon whom an operation for calculus is performed give a history of symptoms which point to the previous existence of a calculus for ten or fifteen years. In France calculi are supposed to be very rare in childhood. In India, China, Persia, Turkey, the basin of the Danube and the Theiss, in England and North America, and in Russia, they occur with some frequency. They are met with more often in boys than in girls. In Bokay's statistics, relating to 1,621 cases, 43 of the patients were less than 1 year old, and the greatest number of cases were seen between 3 and 4 years. The first symptom of the trouble is usually increased diurnal and painful micturition. The child passes water nearly every hour in the day, and rarely at night, and the micturitions are painful and accompanied by a tearing sensation, which is carried to the extremity of the gland. The last drops of urine are apt to stagnate between the prepuce and the gland, causing balanitis. The child cries and stamps, and may even go into syncope, during the act of micturition. The urine is clear. There is sometimes a slight prolapse of the rectum at the time of micturition. The child may also be subject to pain while playing or walking, and may even pass small calculi or notice sudden interruptions to the passage of the urine. Hematuria is very exceptional under 16 or 17 years. As a rule the symptoms are marked, the pain very slight, there being only a sensation of irritation. The diagnosis of the onset of the affection is difficult. An incontinence of urine, persisting in spite of treatment to 7 or 8 years of age; micturitions which become more frequent, especially in the daytime; pain, even of a fugitive character, about the gland and penis, should cause the physician to make careful examinations by rectal digital investigation, by the radiograph, and by exploration with the sound. 2. Later, when the symptoms are severe, the diagnosis will rest between calculous and tuberculous cystitis. 3. For a definite diagnosis we should use rectal examination and abdominal palpation; the radiograph, which up to 6 or 7 years of age gives very demonstrative results in photography; and the sound, which will enable us to decide whether lithotritry or suprapubic incision should be resorted to.

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ORIGINAL COMMUNICATIONS.

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THE PHYSICAL AND MORAL EFFECTS OF ABSENCE OF THE  
INTERNAL FEMALE SEXUAL ORGANS:  
WITH REMARKS ON CONGENITAL SEXUAL MALFORMATIONS IN THE FEMALE.

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BY

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(With two illustrations.)

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THE internal female sexual organs may be congenitally absent, or they (excepting the vagina, which is usually left more or less unchanged) may have been removed after puberty for some disease.

My remarks will apply chiefly to the congenital malformations, which, in one shape or another, are quite common. How many such I have seen in the thirty-three years which have elapsed since my graduation I cannot say positively; but as scarcely a year passes without two or three such cases presenting themselves, I do not doubt that the total reaches quite up to one hundred of all degrees and varieties. A certain small proportion of these malformations was of the class known as *androgyny*, or male hermaphrodites, which are common, but were seen by me only when the sex of the individual was in doubt.

Thus, some years ago I was asked to see with two other medical gentlemen a supposed schoolgirl, 17 years of age, who was a member of a well-known fashionable young ladies' boarding school. The failure of the "girl" to menstruate, and certain other physical and moral peculiarities, had attracted the attention and excited the suspicion of the lady principal of the school, and a medical examination was instituted. I found a tall, slender, sallow-complexioned person in female apparel, with a faint down on the upper lip and cheeks, a deep voice, and angular movements. The legs were muscular, covered with hair, not rounded and soft. There was a penis over one inch in length, with the meatus urinarius at its root; a vagina three inches deep, of fair width; labia majora thin; pubes well covered with straight hair; in one groin an oval body, slightly larger than an olive, and very sensitive; per rectum a similar body could be felt on the other side of the pelvis. Mammary glands flat and undeveloped. The crowning feature of the examination was the erection of the rudimentary penis to full three inches on titillation. The sex of the individual was, of course, beyond doubt; and a removal from the ladies' boarding school and the adoption of male dress were advised.

Another case, of a child about 2 years of age, was seen by me at the request of Dr. Harry E. Vaux, of Brookville, Ont., when passing through that town some years ago on my way to the Rideau Lakes. The child had been christened Mary, but was an undoubted boy with hypospadiac penis, divided scrotum, and shallow perineal pouch.

*Gynandry*, or the class of "female hermaphrodites," with hypertrophied clitoris and fat, pendulous labia simulating the scrotum, are less common than the male variety, and easily recognizable by the presence of a well-formed vagina, uterus, and ovaries. In fact, these so-called female hermaphrodites are not hermaphrodites or congenital malformations at all, but only instances of otherwise normally developed women with an acquired deformity of the clitoris and labia. Such women are, or can be rendered, capable of conception and parturition by the simple surgical removal of the deformed tissues.<sup>1</sup>

<sup>1</sup> A very curious and, I believe, unique case of congenital sexual malformation which does not belong to any special type, has recently (Centralbl. für Gynäkologie, Feb. 4, 1899) been reported by Neugebauer, of Warsaw. A young woman, delivered of her first child a week previously, on being examined as to her fitness for a wet-nurse, was found to have normal genital organs, including perfect clitoris; but springing from the middle of the perineum was an organ one inch in length, of the shape and size of the adult penis, with perfect glans and partial prepuce. On manipulation this

A *true* hermaphrodite—that is, an individual possessing the distinctive organs of either sex, the testicles and ovaries, and capable, therefore, of performing the procreative functions of both the male and the female—has, to my knowledge, never been observed, or, at least, the actual presence of those organs in the same person has never been demonstrated by an operation or by the autopsy. Every now and then a case is reported which claims this distinction; but on careful inquiry one of the essential factors—testicle or ovary, usually the latter—is found to exist only in the imagination of the reporter. Uterus, vagina, testicles, seminal ducts and vesicles, vulva, all are present, but the *ovaries* cannot be found, and again the result is a disappointment.

As a rule, so-called “male hermaphrodites” present the general male type, in spite of well-developed mammæ (the nipples and areolæ are usually small), rounded limbs, slightly broader hips, and an absence or scarcity of hirsute development on face, body, and limbs. The voice may be rather high and sharp, but the sexual tendencies are toward the female, the social proclivities are masculine, and the rudimentary hypospadiac penis and undoubted testicles stamp the individual. To identify the sex of such a person is easy. But there are a few exceptions to this usual type of male hermaphrodites, in whom the general configuration is apparently entirely feminine, the external genital organs are normally female, the vagina is of proper dimensions, and still the absence of uterus and ovaries, and the presence of more or less developed testicles, within or without the body, prove the person to be sexually a male.

Such a case came under my observation a number of years ago and was then reported.<sup>1</sup> The person was Mary O’N., Irish, 46 years of age, unmarried, a cook. She had never menstruated nor had menstrual molimina. She consulted Dr. E. Swasey for double inguinal hernia, and he discovered the genital anomaly and referred her to me. Her general build was typically feminine; no beard; voice rather harsh; external genitals distinctly female; breasts fairly developed; clitoris organ erected itself to the length of two inches. How this “penis” came to be situated on the perineum, and what could be its possible object in that, for a penis, out-of-the-way locality, is an embryological mystery, especially as the organ was solid and there was no sign of testicles. Two photographs accompany the report. The woman disappeared from observation.

<sup>1</sup> Swasey, this JOURNAL, 1880, and Mundé, Centralbl. für Gyn., No. 42, 1887.

not enlarged; hymen uninjured; vagina three inches deep; no trace whatever of uterus or appendages. After reduction of the double inguinal hernia an ovoid body of the size of a hen's egg, with an attached upper smaller body *exactly resembling the testicle and epididymis*, remains in each labium majus; these bodies are very sensitive to pressure and are not reducible.

In spite of the thoroughly feminine appearance of the woman, I felt justified in assuming that the bodies in the labia majora were what they appeared to be—namely, testicles, and not ovaries—and that the person was, therefore, a male. Had these bodies been ovaries, and of as normal development as their size indicated, the phenomena of menstruation, with or without the periodical discharge of blood from some part, would undoubtedly have appeared from puberty on. Unfortunately I was prevented from verifying my supposition by a microscopic examination of the supposed testicles, for “Mary” refused to consent to my proposal to have her herniæ operated upon—perhaps suspecting my design on the mysterious organs in her labia—and disappeared from view.

I am the more convinced of the correctness of my opinion since this case, although exceedingly rare, is not unique. Five similar cases are on record, in all of which the microscope showed the oval bodies removed from the inguinal canal or labia at the autopsy or during life to be testicles: 1. *Leopold*:<sup>1</sup> Woman 50 years of age, married, never menstruated; female build, large pelvis, normal vagina, no uterus, no ovaries; testicles with epididymis and vas deferens at each side of the mons veneris. 2. *Ricco*:<sup>2</sup> 80 years, married; external genitals normally feminine, but no myrtiliform caruncles; vagina six centimetres long, no uterus, no tubes, no ovaries; testicle in each inguinal canal, seminal vesicles between bladder and rectum; pelvis and body of masculine type. 3. *Steglehner*:<sup>3</sup> 23 years; normal vulva, narrow vagina, voice somewhat masculine, body feminine; autopsy shows absence of uterus, ovaries, and tubes. Testicles and epididymis in each inguinal canal; seminal vesicles behind bladder; seminal ducts open into vaginal vault. 4. *Giraud*: 40 years, married; normal vulva, except clitoris somewhat large; beard; large pelvis; feminine limbs. Autopsy showed prostate gland, vasa deferentia, seminal vesicles; two testicles under the skin at each side of the clitoris; vagina blind; no uterus, ovaries,

<sup>1</sup> Arch. für Gyn., xiii.

<sup>2</sup> Todd's Cyclopedia, ii.

<sup>3</sup> Kussmaul: Missbild. der Geb.



or tubes. 5. *Chambers*:<sup>1</sup> 24 years, single; feminine build, normal vulva; vagina three inches deep, blind, no uterus, ovaries, or tubes; in the labia majora organs resembling the testicle, which were removed by operation and under the microscope proved to be testicles.<sup>2</sup> This last case closely resembles mine. We have thus six cases of feminine build, normal vulva and vagina, absence of uterus, ovaries, and tubes, in which the presence of testicles in the labia majora or inguinal canal (assuming that the doubtful bodies in my case really were testicles) showed the apparent woman to be a man.

In my experience instances of normal female build with apparent complete absence of the uterus, ovaries, and tubes, and normal vulva and *vagina*, are far less common than those presenting the same irregularities *together with absence of the vagina*. Usually when I have found the uterus, ovaries, and tubes missing, with normal vulva, the vagina has also been absent. It seems that when Nature failed to effect the normal development of the tubes, ovaries, and uterus from Müller's ducts and the Wolffian bodies, she usually included the vagina in her failure.

Curiously, Nature does not appear to pursue any order or system in these errors of development. As we have seen by the above-quoted records, a person in every respect, physically and morally, so far as the latter attributes can be judged, a perfect woman, may still lack the one essential factor of femininity, the ovaries, and instead possess the organs which stamp the individual a man.

And, on the other hand, numerous cases are on record of perfectly formed women with normal external genital organs, but lacking vagina, uterus, ovaries, and tubes.

Some years ago I saw in my clinic at the Polyclinic an Irish girl, 21 years of age, as perfect a specimen of a buxom, finely developed woman as I ever met, who came to ask why she had never menstruated. Her external genital organs were normal, but there was absolutely no trace of a vagina and no sign of ovaries, tubes, or of the uterus except a small body of the size of a peanut some three inches deep in the pelvic cavity. She wished an operation for the possible establishment of her menstrual function; and in the somewhat vague hope that under anesthesia I might discover rudimentary ovaries, which could be stimulated to activity by electricity, I constructed a

<sup>1</sup> London Obstetrical Transactions, 1859.

<sup>2</sup> The above cases are quoted from the article by Leopold, loc. cit.

vagina for her, opened the rudimentary uterus and evacuated its viscid mucous contents, and stitched it to the vagina. Ovaries were not found, and consequently the true object of the operation was not attained.

Several years ago I described "Seven Unusual Cases of Congenital Malformation of the Female Genital Organs,"<sup>1</sup> of which the above was one. The others were: 2. Perfect vagina, absence of uterus and ovaries; normal female habitus. 3. Normal external genitals and vagina; rudimentary uterus, absence of ovaries. 4. Double uterus and vagina; congenital closure of right half; hematometra and hematocolpos dextra lateralis; operation; cure. 5. Double uterus and vagina (uterus didelphys—twin uterus); normal ovaries; dysmenorrhea; removal of septum; cure. Single, 24 years of age. 6. Double uterus; pregnancy in one half mistaken for extrauterine; celiotomy; error in diagnosis discovered; abortion; recovery. 7. Double uterus and vagina; right half multiparous and containing fibroid; left half rudimentary.

Since then I find recorded in my office case-book 25 cases of congenital malformation of the female sexual organs, and 2 have been admitted to my service in Mount Sinai Hospital, making 27 cases in six years. The 2 cases admitted to the hospital were, one of imperforate hymen with pyocolpos, and one of congenital absence of uterus, ovaries, tubes, and vagina, who came to have a vagina constructed; this was done. (See Fig. 2.)

The types of malformation of these 27 cases were as follows:

*Congenital Malformations.*

	Cases.
1 Rudimentary uterus, scarcely a trace; ovaries apparently <sup>2</sup> absent; vagina one-half to three inches deep; normal vulva; never menstruated; perfect female habit: single 3, married 5 cases.....	8
2 Uterus and ovaries apparently absent; vagina absent; vulva normal; never menstruated; habit fairly feminine; single 2, married 2.....	4
3. Rudimentary uterus and ovaries; never menstruated; normal vulva and vagina; married.....	1
4. Rudimentary uterus; no ovaries; no vagina; never menstruated; single; vulva normal.....	1

<sup>1</sup> This JOURNAL, No. 3, 1893.

<sup>2</sup> When I say "apparently absent" uterus or ovaries, I mean that no sign of these organs can be detected by the ordinary methods of examination. This does not imply, of course, that an abdominal section or an autopsy might not reveal a minute trace of either uterus or ovaries, the presence of which latter would explain the feminine configuration of the body and irregular menstrual manifestations.

	Cases.
5. Rudimentary ovaries; no uterus; vagina one inch deep; vulva normal; married; good figure.....	2
6. Ovaries absent; vagina, uterus and vulva normal; never menstruated; married.....	1
7. Uterus and one ovary absent; vulva and vagina normal; in right inguinal hernia oval body, possibly ovary; 29 years of age; married eleven years; supposed first menstruation at 18; since then always irregular, not oftener than once a year.....	1
8. Uterus bicornis septus; pregnant in left horn.....	1
9. Uterus et vagina duplex; hymen duplex; one ovary and tube on each side; one married, 18 years old, nullipara; the other married, pluripara; menstruation normal.....	2
10. Stenosis vaginæ, about two-thirds up; opening just admits sound; 1 single, 2 married; 1 pregnant two months.....	3
11. Imperforate hymen; retentio mensium; hematometra and hematocolpos.....	3
	<hr/> 27

From the above list it will be seen that an accurate classification of these congenital anomalies is difficult to make; in one respect these individuals agree—namely, they are all more or less imperfectly formed women, their chief and distinctive characteristics being clearly feminine. They are, therefore, neither deformed males simulating females, nor are they true hermaphrodites. Those who possess a vagina are at least able to conform to the usages, if not to the ultimate objects, of marriage; others having functioning, if not perfect, ovaries, menstruate more or less regularly or perfectly, and confess to a certain degree of sexual passion even in the absence of a vagina; and others, again, are blessed with more than their share, having a double hymen, vagina, and uterus, each half capable of fulfilling its functions, as it possesses a healthy ovary and tube. In all these cases the vulva is normal.

From my list it appears that the cases of rudimentary uterus, apparent absence of ovaries and tubes, vagina more or less developed, perfect female habit, amenorrhœa, are the most common; next being those with like imperfections, to which is added absence of the vagina. The other deficient malformations are far more rare and occur in about equal proportion. Double malformations, however, are nearly as common as the deficient varieties described under Classes 1 and 2, and very few gynecologists have failed to see a number of cases of uterus septus, vagina septa, double hymen, uterus bicornis non-septus. Cases of uterus unicornis, with one well-developed half and the other rudimentary (hollow or solid) or absent, are

in my experience decidedly rare, and I can recall but one or two such instances.

The shades and degrees of these various congenital malformations are numerous, and range from a double hymen, a more or less double vagina and uterus, a closed or constricted



FIG. 1.—Single, 24 years old. Absence of uterus, ovaries, tubes, and vagina. Vulva normal. Never menstruated. Artificial vagina constructed.

vagina or external os, a one-horned uterus, and so on, to the apparent complete absence of the uterus, ovaries, and tubes and the undoubted absence of the vagina. Malformations of the urinary organs, and those which are inconsistent with extra-uterine life, are not considered in this article.



While there are numerous illustrations of so-called hermaphrodites—that is, almost invariably of men with sexual organs simulating those of the female, and with somewhat feminine general type (breasts, hips and rounded limbs, and smooth face)—there are to my knowledge no pictures of women in whom the distinctive sexual glands of the female, the ova-



FIG. 2.—Married; 26 years old; rudimentary uterus and ovaries (?) ; absence of vagina. Menstruated (?) twice. Artificial vagina constructed.

ries, are congenitally absent; and I have thought it interesting and useful to study the general configuration of such women, with the view to ascertaining whether they nevertheless possess the general physical and moral characteristics of their fully developed sisters.

Although frequent former opportunities had been given me

to secure drawings or photographs of such women, I had never availed myself of them, partly through oversight, partly through the absence of a convenient camera, until this winter, when two such cases entered Mount Sinai Hospital and, at my request, permitted Dr. L. A. S. Bodine, of the house staff, who possessed and understood the use of a camera, to photograph them.

Fig. 1 is that of a working girl, 24 years of age, who consulted me at my office because, as she said, she had never menstruated or had the least intimation of that function. When I found her to be an otherwise perfectly formed woman (as the figure shows), with normal vulva, but with absolutely no trace of vagina, uterus, or ovaries, I told her that I could do nothing for her. Then she confessed that she was engaged to be married and could not afford to ruin her chances of being settled for life by breaking her engagement. When I then told her that all I could do for her was to construct a vagina, which she would have to keep open by wearing a plug until her husband could attend to that duty, she earnestly begged me to operate on her; and although I hesitated to do so unless she told her lover of what he had to expect, which she refused to do, I finally yielded to her importunities and admitted her to the hospital. Before operating I had her photographed, in order to illustrate the feminine outlines of a congenitally unsexed woman. I made a vagina, three and a half inches deep, of fair dimensions, to as high a point as I dared—that is, until I distinctly saw the in- and expiratory movements of the peritoneum; this vagina was kept open by a glass plug, which the girl wore constantly for nearly three months, retaining it without a bandage by the overlapping labia. Long before that time the vaginal surface was healed and presented a normal pink color. I saw her several days before her marriage, and told her to continue wearing the plug during the daytime and to inform me if there was any trouble in connection. So far, one month, I have not heard from her.

Fig. 2 represents a young woman, 26 years of age, married three years, who entered the hospital a few days after the operation on Fig. 1. She stated that she had never menstruated, but that in her eighteenth year there was on two occasions, at intervals of several months, a slight bloody discharge from her genitals lasting less than a day. I doubt whether this can be considered menstruation. She wished an operation performed to bring on menstruation, hoping that she might thus be able to conceive. The photograph shows her perfect

figure, of a more slender and graceful build than Fig. 1. Her external genitals were perfect; urethra normal. There was a vaginal pouch about one inch deep, which could be pushed upward somewhat with the finger—evidently the result of three years' faithful marital efforts, which I afterward learned had extended over several years before marriage, when she was her subsequent husband's mistress. The finger per rectum was able to detect a thin, transverse, crescentic band some three inches in the pelvic cavity, which was evidently the rudimentary uterus; to the left side of this could be felt an oval body as large as a small lima bean, which was tender on pressure. The woman said that during coition a pleasurable sensation was excited when this small body was pressed upon. For the want of something better she also elected to have a proper vagina made, the one she possessed being really nothing else than a pocket of the vestibulo-anal integument. She also was discharged wearing a plug, and nothing more was heard from her. It is, of course, possible that the small body on the left side is a rudimentary ovary—indeed, it is probable, considering that there undoubtedly is a rudimentary uterus. But in Fig. 1 there was no trace whatever of either uterus or ovaries.

I am inclined to believe that women with perfect feminine figure and attributes have somewhere in their abdominal or pelvic cavity a, perhaps almost infinitesimally minute, ovarian trace which preserves their femininity, although it is insufficient to cause ovulation or menstruation.

Treatment is, of course, unavailing for such cases of imperfect sexual development; indeed, the anomaly produces no discomfort or inconvenience so long as the individual remains single or does not attempt to put her sexual organs to the test. Then the absence of a vagina is discovered and the urethra or rectum substituted; or if the woman happens to possess a blind vaginal pouch this may prove satisfactory, or the failure of conception in time entails complaint and a separation ensues.

An artificial vagina is easily constructed, but unless persistently and carefully stretched will inevitably contract in time. To prevent this, Mackenrodt covered the raw walls of the new vagina with grafts from a vaginal wall denuded during an operation for rectocele, and Abbe used skin grafts from the thigh of the woman; but in the case of the latter the steady wearing of a plug was required to prevent contraction. So I cannot see that this ingenious device proved particularly effectual.

The mere absence or rudimentary development of the vagina, uterus, ovaries, and tubes need not produce any symptoms whatever, disagreeable or otherwise. Occasionally, however, a woman with such a malformation presents menstrual molimina of so severe and frequent a character as to render her an invalid and to justify extreme measures for her relief. Narcotics are but palliative; the physical and mental health of the patient begins to suffer, and nothing but the removal of the cause of the trouble, the rudimentary ovaries, remains. One of the first cases of this kind was reported by Peaslee about thirty years ago (the patient died from the operation), and Vineberg has recently published a similar case in which he had some difficulty in finding the rudimentary ovaries, they being situated away from the pelvic cavity near the spinal column and of course retroperitoneal. Such cases must be rare, since in none of mine were such severe menstrual molimina observed.

To attempt to incite rudimentary ovaries or uterus to growth and activity is hopeless—indeed, so far as the ovaries are concerned, even undesirable for obvious reasons when there is no uterus. A double uterus and vagina may safely be let alone, provided each half is capable of doing its duty. The septum does not prevent intercourse, conception, or normal parturition. Women have been known to have gonorrhea of one half of a double vagina (case of Dr. Hale, of Chicago), and to bear successively a full-grown child from each half of a double uterus and vagina. Pregnancy in one half of such a double uterus may be mistaken for an interstitial or tubo-uterine pregnancy (see case reported by me in this JOURNAL, No. 3, 1893, Case 6 of "Seven Unusual Cases of Congenital Malformations of the Female Genital Organs," where the woman had previously borne a full-grown child from the other half).

Pregnancy in a rudimentary horn of a double uterus usually terminates in early rupture and dangerous intraperitoneal hemorrhage, precisely like ectopic gestation. Excision of the septum of a double uterus and vagina was once performed by me in a young unmarried lady of highly neurotic temperament with neuralgic (ovarian) dysmenorrhea, who had been informed by her previous medical attendant of her malformation and feared that it would prevent her performing the duties of a wife and mother. With the object of removing this impression, which made her exceedingly unhappy, I excised the vaginal and divided the uterine septum, and thereby also relieved the dysmenorrhea. (See Case 5, loc. cit.)



When one half of a double uterus or double uterus and vagina is imperforate, the retention of menstrual blood in the closed canal requires the free opening of the latter (see Case 4, *loc. cit.*). Stenosis and atresia of the vagina and imperforate hymen of course call for surgical restoration of the calibre of the canal, an operation usually devoid of difficulty or danger. A bifid hymen should be divided, as it may form an obstacle to coition. The other minor forms of congenitally deformed hymen (cribriform, semilunar, contracted orifice) need to be operated only when they interfere with sexual intercourse.

It is not my purpose to cover the whole ground of these congenital deformities, and I shall therefore content myself with what I have written about them from my personal observation, making no claim to completeness in this article.

It now remains for me to refer to the influence on the fully developed female body and character of the removal of the ovaries, performed either for disease of those organs or for the purpose of arresting menstruation. I dare say that the removal of the ovaries of a girl some years before she reaches puberty will cause not only an arrest of development of her uterus and vagina, but will also influence the growth of the breasts and the normal development of the pelvis peculiar to the female. I have seen no such case, nor do I know of any such observation by others; but it is possible that a search through literature may disclose reports of cases which verify my supposition.

When, however, the woman has attained her full physical and psychical development, I, for my part, have never seen a positive alteration produced in her by the removal of her ovaries. I have performed castration on hundreds of women for ovarian disease (tumors, inflamed and adherent ovaries and tubes, abscess of ovaries and tubes, ectopic pregnancy on one side and adherent appendages on the other); twice I have removed the normal ovaries for uterine fibroid, and many times together with the fibroid uterus; and seven times the apparently normal but microscopically diseased ovaries for reflex nervous disturbances (hystero-epileptiform and cataleptiform seizures), with permanent disappearance of these attacks;—and in none of these cases has there been any change in the physical appearance or in the moral or mental attributes.

Nor has any marked diminution of the sexual desire been reported to me, on questioning where opportunity was offered me to do so, although I admit that many such women con-

fessed to me that they had no particular sexual feelings before the operation. On the contrary, several women have reported to me an increased sexual desire after removal of their ovaries. One young woman, a virgin, from whom I removed the ovaries for a bleeding interstitial fibroid, with the result of a complete arrest of menstrual and other uterine hemorrhage, and a shrinking to one-half of the tumor, married a year later, became a widow, and ten years after the operation consulted me as to the advisability of a second marriage which she wished to contract, as her first husband, who was an elderly man, had not been able to satisfy her, and she felt the need of sexual gratification so strongly as to be almost unable to control her desire. I examined her, found scarcely a trace of the fibroid, no other sexual disease, and therefore advised marriage.

Another lady, a woman of means and education, whose ovaries had been removed shortly before by another operator, for what reason I do not know, and who was also a widow, admitted that she felt compelled to gratify her sexual desire by intercourse with a "friend" at least twice a week. I had the opportunity to see this lady at times for several years for a slight cystocele (she had borne three children), and was impressed with her improved appearance, enlarged bust development (not adipose), and general buoyancy of spirits under the sexual régime which she claimed to feel necessary to her health and comfort. Never have I seen a growth of hair on the face or body, or a change of voice, or a desire for unwomanly occupations follow the removal of the ovaries. And I do not, therefore, from my experience agree with those who fear such changes from this operation, and for this reason I have felt perfectly justified in assuring patients who dreaded such a result, and the risk of not being able thereafter to perform their wifely obligations, that there was no occasion for their apprehensions.

In this respect the male sex is similar: men whose testicles have been removed after puberty may still retain a certain degree of erectility of the penis, permitting coition, and there may be an emission of prostatic secretion. To avoid risks from these possibilities, eunuchs for Mohammedan harems are castrated before puberty, and even the penis is removed.

The normal menopause is usually followed by a gradual atrophy of the uterus and ovaries and a shrinkage of the vaginal calibre, unless there has been an excessive dilatation of the canal and a relaxation of its walls, such as is caused by

many and difficult labors and by laceration of the perineum. These physiological changes are unattended by serious discomfort, if we except the nervous symptoms and vasomotor neuroses (slight mental irregularities, irritability, "hot flashes," etc.) common to this period of female life. Occasionally mental disturbances of a more decided and permanent character attend the natural menopause; and I have seen a few instances of the same nature after the removal of the ovaries. But such occurrences are, in my experience, decidedly the exception and happen most frequently in women predisposed to hysteria or to mental derangement.

I have not thought it necessary in my practice to preserve part or the whole of an ovary after removal of the uterus or the diseased ovaries and tubes in order to spare the woman these climacteric disturbances, as has been recommended by some recent operators. The danger of future degeneration of the remaining ovary or particle of ovary seems to me greater than the discomforts from the climacteric neuroses.

A not uncommon result of the natural and the induced menopause is an atrophic catarrhal inflammation of the endometrium and the vagina, which I and others have described as "senile endometritis and vaginitis."<sup>1</sup> Much more rare is the growth of fibrous tumors of the uterus after the natural menopause or after removal of the ovaries. I can recall several instances of this nature, twice after removal of double pyosalpinx and pus ovaries by myself, and once after an oöphorectomy by Hegar. But I cannot recollect a case in which a solid fibrous tumor of the uterus continued to grow after the menopause, as has been reported by Joseph Taber Johnson.<sup>2</sup> Removal of the ovaries to check the growth of a uterine fibroid, however, often fails to achieve that result.

<sup>1</sup> See article by me on "Virginal and Senile Endometritis," *American Gynecological Transactions*, 1896, and this *JOURNAL*. No. 1, 1896.

<sup>2</sup> Curiously, on the day after this article was completed, a woman, 46 years of age, multipara, was admitted to my service at Mount Sinai Hospital for operation for a large myofibroma of the uterus, who stated that she had not menstruated since her fortieth year, and that the tumor had developed during that time, chiefly in the last six months. Her own statement is the only evidence at my disposal. If such a rapid increase of a uterine tumor unquestionably occurs after the menopause, I should be inclined to suspect malignancy of the growth. That fibroids of the uterus do occasionally develop rapidly through cancerous degeneration cannot be denied; I removed such a one by celiotomy during the past winter which weighed twelve pounds and was reported to have grown within ten weeks.

A fibrocyst of the uterus is not retarded in its growth by the menopause, and ovarian tumors frequently begin to develop long after the "change of life." I myself have successfully removed one from a woman 72 years of age, which grew rapidly within three months, as the operation showed from a twisting of its pedicle; and one has been removed from a woman over 90 years of age. Whether cancer of the uterus really is more frequent after than before the menopause is questionable, although there is a general opinion that such is the case. The majority of authors state that it is most common between the ages of 40 and 50, but whether the arrest of menstruation predisposes to the development of carcinoma of the sexual organs seems to me doubtful. This question, however, is not strictly germane to my subject, and I shall not, therefore, pursue its consideration in this article.

The removal of the normal uterus alone, in my opinion, has no influence whatever on the general physical or psychological welfare of the patient; nor can I see how it can cure remote symptoms or relieve mental disturbances, as has been claimed by some operators. I have, therefore, refrained from removing the uterus for the relief of general neuroses which have persisted after the ablation of the ovaries for the same purpose had failed to effect a cure. Of course this remark does not apply to cases where the pelvic conditions necessitated the performance of hysterectomy.

On general principles, a woman congenitally or surgically bereft of her uterus can be as healthy, so far as that organ alone is concerned, as when her sexual apparatus is complete and perfect.

20 WEST FORTY-FIFTH STREET.

February, 1899.

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## PUERPERAL INFECTION.

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BY

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RECENT investigations have proved conclusively that puerperal infection is not dependent upon one specific micro-organism, but may be produced by various types of bacteria.



In other words, puerperal infection or fever is not a disease like typhoid fever or cholera, which necessitates the presence of the typhoid or cholera bacillus, and what is usually described under the name of puerperal fever is a septic infection of the genital tract, which in mild cases remains localized and in the severe cases spreads throughout the body. The bacterium most commonly met with in puerperal infection and responsible for the most serious cases is the streptococcus pyogenes. Streptococci can inhabit the vagina of perfectly healthy women without giving rise to any symptoms. They often grow as saprophytes upon the surface of the vaginal mucous membrane, but under certain conditions cease to be harmless and cause the most alarming symptoms. Streptococci from septic wounds are the most virulent and have the greatest capacity for infection. The abrasions of the mucous surfaces occurring during confinement constitute the entrance gates of infection, and the cervix, the uterine cavity, and especially the placental area are most apt to spread the infection.

Until recently it was thought that puerperal infection was due to streptococci only, but numerous investigations have shown that even fatal infection may follow the invasion of *staphylococci*. Staphylococci, like streptococci, are often found in the normal vaginal secretions as harmless parasites, but they also change their habits and can acquire a most dangerous character. A few years ago I had occasion to observe a typical case of staphylococcus infection. A primipara, with a good history, had a normal confinement at full term. The puerperium up to the eleventh day was absolutely free from complications. Pulse, temperature, and general condition showed no abnormalities. She was permitted to leave her bed on the eleventh day, after a careful examination which showed the uterus well contracted and not sensitive. Her pulse and temperature were normal, and she expressed herself as feeling strong and well. A few hours later she was seized with severe chills. The temperature immediately rose to  $104^{\circ}$  and above. Examination showed nothing abnormal except pain upon pressure in the right parametrium. The lochia were normal and scanty, as expected at this period. The heart, lungs, and other organs of the body were in a normal condition. The subsequent history of the case was one of a well-marked septic character, alternating rises and abrupt remissions of temperature. The infection attacked the heart and pericardium, producing a septic endo- and pericarditis, this again being followed

by a septic pneumonia. She died forty-three days post partum, having in the meantime contracted meningitis and infection of various joints. A careful bacteriological examination, by a competent biologist, demonstrated the presence of staphylococci in the heart, blood, and periuterine exudations. The mode of infection and its violent character could not be explained. Infection from without being positively excluded, I believe this case belongs to the class which Ahlfeld designates as autoinfection. The staphylococci were probably both before and during puerperium harmless inhabitants of the vagina, requiring only something to be aroused into action. What constituted this something in this case I was never able to explain.

Hahn<sup>1</sup> reports 15 cases of pyemia and sepsis in which the blood and metastatic abscesses were subjected to a careful bacteriological examination. In 4 cases of pronounced pyemia he found 3 times streptococci and in the fourth case *staphylococci*. In 7 cases of typical sepsis Brieger and Herrlich<sup>2</sup> found almost pure cultures of *staphylococci* and streptococci. Hoff<sup>3</sup> describes 2 cases of puerperal sepsis in which *only staphylococci* were present. Petrusky<sup>4</sup> has made a careful bacteriological study of pyemia and sepsis, and, amongst others, reports 14 cases which were carefully examined in Koch's laboratory. In 8 of these only the streptococcus was present, in 5 the result was negative, and in the remaining case the *staphylococcus* was the cause of the sepsis. Cushing<sup>5</sup> examined in the Vienna Hospital the pus and blood of women suffering from puerperal pyemia. The streptococcus was most frequently present, and *he also found the staphylococcus* and in a few cases the bacillus fetidus. Mironow<sup>6</sup> examined the lochia of puerperæ suffering from mild sepsis. He found streptococci 7 times; in 2 cases both streptococci and *staphylococci*, and in the remaining case a streptococcus and a small bacillus which he does not name and which was probably the bacillus fetidus. Mironow divides puerperal sepsis into a specific and non-specific variety. The former is due to the presence of streptococci and staphylococci. In the non-specific variety the fever is caused by the resorption of putrid material. Bumm<sup>7</sup> differentiates a putrid and septic endometritis. The first variety is less frequent and depends largely upon the presence of the bacillus fetidus;

<sup>1</sup> Virchow's Archiv., 1891.

<sup>2</sup> Dissertation, Strassburg, 1890.

<sup>3</sup> Bost. Med. and Surg. Jour., 1885.

<sup>4</sup> Arch. f. Gyn., Bd. xl.

<sup>5</sup> Char. Anal., Bd. xiii.

<sup>6</sup> Zeit. f. Gyn., Bd. xvii.

<sup>7</sup> Centr. f. Gyn., 1891.

nevertheless in not a small number of these cases the discharge contains also streptococci and staphylococci. In the septic form the streptococcus is usually found, at times in conjunction with the staphylococcus.

The *bacterium coli*, long considered a harmless parasite, has been found in well-pronounced puerperal infection, alone and together with other bacteria. Thus, Schenke<sup>1</sup> reports a case of criminal abortion in which the postmortem examination showed a septic colpitis and endometritis. The peritoneal exudations contained, besides streptococci, the bacterium coli. In another case of puerperal sepsis the uterine cavity contained colon bacilli. Chantemesse<sup>2</sup> reports a case of puerperal sepsis in which the bacterium coli was found in the uterus and the blood of the woman, who perished from peritonitis. Gebhardt<sup>3</sup> found in 6 cases of puerperal sepsis colon bacilli, four times alone and twice together with streptococci. That colon bacilli may cause septic infection is proved by the experiments of Morisani,<sup>4</sup> who investigated the action of the bacillus coli upon the lining membrane of the uterus. He first experimented with cultures of the microbe on the uninjured uterine mucous membrane, and got negative results. He then experimented on an irritated endometrium. The irritation was either mechanical, thermal, or chemical; the result was death in every case, after from fourteen to fifty-two hours. Thus, like other pathogenic microbes, this bacterium does not damage an unbroken endometrium. If, however, the mucosa is irritated, local and general infection is likely to occur. Such conditions as artificially produced by Morisani are found in the puerperal uterus. The mucous surfaces are raw and contused through the act of parturition; the chemical irritation is supplied by the so-called prophylactic douches of irritating antiseptic solutions. The necessary and unnecessary manipulations facilitate the entrance of the bacterium coli, which has only a short distance from the anus to the introitus, and I do not wonder at the frequency of infection from the colon bacillus, but at the comparative rarity.

*Gonococci* are frequent inhabitants of the genital tract. During the puerperium they may give rise to most pronounced symptoms of sepsis if they ascend into the uterus or adnexa. They may remain latent for a long time, but under favorable

<sup>1</sup> Arch. f. Gyn., Bd. lv.

<sup>2</sup> Lib. Med., 1891.

<sup>3</sup> Verhand. d. 5. Versamm. d. Deutsch. Gesellsch. f. Gyn., 1893, and Zeit. f. Geb. und Gyn., Bd. xxvi.

<sup>4</sup> Arch. d'Obstet., 1897.

circumstances can be aroused to new activity. Gonorrheal infection is usually circumscribed and limited to the immediate neighborhood of the uterus. Not infrequently, however, gonococci are associated with other micro-organisms, and are then apt to produce a general sepsis. It is only recently that the importance of, and the dangers from, gonorrheal infection have been recognized. Thus, Leopold,<sup>1</sup> in a report of 100 cases of Cesarean section, states that danger from gonorrheal infection cannot be too strongly emphasized, and the author takes a most decided stand against the performance of Cesarean section in the presence of gonorrhea. For this reason careful examinations of the vaginal and cervical secretions are advised. In the Dresden Clinic every patient is subjected to this most careful examination. In 4 cases of gonorrhea which were otherwise suitable for conservative Cesarean section the Porro operation was performed. I believe that if in all cases of puerperal infection careful bacteriological examinations would and could be made, the gonococcus would be found to cause more mischief than even the much-feared streptococcus. Gonococci would not always be present as pure cultures, but more in conjunction with other bacteria; yet it is their presence which changes the healthy character of the mucous membrane and facilitates the growth and infection from other bacteria.

I observed during the last six months two typical cases of gonorrheal infection. In both of these cases I diagnosed chronic gonorrhea during pregnancy, and, as is my custom, employed the methods which tend to lessen the danger from gonorrheal infection. Both women were primiparæ. In one the delivery was normal; the second case necessitated the application of the forceps. In the latter the perineum was slightly lacerated, but immediately repaired. In the first case the patient continued perfectly well for two weeks without a rise of temperature or other symptoms of malaise. On the sixteenth day she complained of pain on urination, and an examination showed a urethritis and profuse muco-purulent secretion containing almost pure cultures of gonococci. She also had a vulvitis, vaginitis, and pains in the right parametrium. The temperature ranged between  $101^{\circ}$  and  $102\frac{1}{2}^{\circ}$  for two days, when it rose to  $104^{\circ}$ . The symptoms of pelvic peritonitis at the same time became more pronounced. The case was treated with absolute rest, ice bags on the abdomen, ichthyol applications to the vagina. The temperature gradually receded with the improvement

<sup>1</sup> Arch. f. Gyn., Bd. lvi., Heft 1.



in the pelvic symptoms, and after a lapse of two weeks the patient was perfectly well except for a slight induration of the parametrium, which gradually improved under appropriate treatment. In the second case gonococci were also found during pregnancy. Labor was terminated by forceps. The puerperium was absolutely normal, temperature never being above 98.6°. The patient left her bed two weeks post partum in excellent condition. After four weeks she was permitted to go out, and she continued to feel well until six weeks post partum. I was again summoned to her house and found her in bed with an active pelvic peritonitis. The right side was especially involved, and the case at first simulated an attack of appendicitis. Increased vaginal secretions, the presence of almost pure cultures of gonococci, and also the subsequent behavior of the case, showed that it was a gonorrheal infection. The case pursued an exceedingly tedious course, with numerous improvements and relapses, but, as the infection did not extend to the general peritoneal cavity, the patient finally recovered. I could relate numerous similar cases, but these two are typical cases of puerperal gonorrheal infection, which, however, is not quite a correct expression, because in most cases the infection predates labor and becomes simply intensified or is brought back to life through the act of parturition.

That puerperal infection from gonococci is not a rare occurrence is shown by the numerous reports of such cases. Krönig found in 296 puerperæ the gonococcus in the lochia 33 times—that is, 11 per cent—and Bumm<sup>1</sup> 11 times in 196 cases. Du Bouchet, in studying 7 cases of infection after labor or abortion, found the gonococcus in one and the bacillus coli in another. In all the other cases there was a mixed infection. Madler<sup>2</sup> reports a case where the uterus was removed seven weeks after confinement and in which colonies of gonococci were found in the muscle substance of the cervix and the fundus of the uterus. Neumann<sup>3</sup> demonstrated the presence of gonococci in the particles of decidua obtained from the puerperal uterus. Thus there can be no doubt of the fact that the gonococcus may cause, and indeed does cause, puerperal sepsis. This, to my mind, explains many cases of puerperal infection occurring in spite of every precaution. I formerly ascribed every case of puerperal sepsis to carelessness and lack of pre-

<sup>1</sup> Cent. f. Gyn., 1897, No. 45.

<sup>2</sup> Münch. Med. Woch., Dec., 1895.

<sup>3</sup> Monats. f. Geb. und Gyn., Bd. iv., Heft 2.

caution. I have since then observed a number of cases in which, in spite of the greatest care, sepsis occurred. It is important to emphasize this fact, as the public is apt to place death from sepsis at the door of the medical attendant. Bröse<sup>1</sup> thinks that gonorrheal peritonitis occurs in women during and after the puerperium, and A. H. Burr<sup>2</sup> believes that many cases of puerperal infection are due to previous gonorrheal infection, either active or latent. He described 5 illustrative cases.

*Pneumococci and diphtheria bacilli* have in a few cases been found as the cause of puerperal sepsis. Thus, Canon<sup>3</sup> reports a case of fatal puerperal sepsis in which he obtained pure cultures of pneumococci. Bumm, Croffi, and Neisot<sup>4</sup> observed well-marked cases of vaginal diphtheria associated with laryngeal diphtheria. Neisot<sup>5</sup> records a case of utero-vaginal diphtheria, the disease appearing the third day post partum. The whole utero-vaginal canal was found to be lined with a shining white membrane, detachment of which left a bleeding surface. Bacteriological examination revealed almost pure cultures of the Löffler bacillus.

The *bacterium of putrefaction* causes undoubtedly many cases of puerperal sepsis. These bacteria are frequent inhabitants of the vagina, and, if not already present, may enter the same with comparative ease. Krönig found in 296 cases of puerperal infection the bacillus fetidus 32 times, and Bumm 58 times in 166 cases. Both these authors report fatal cases in which only this bacillus was present. As a rule this bacillus causes but slight disturbances and produces the so-called cases of one-day fever.

Besides the above-mentioned bacteria, the literature contains a few reports where typhoid and tetanus bacilli produced puerperal infection. Thus, Vinay<sup>6</sup> reports a case of fatal tetanus following infection of the uterus after abortion in the second month of pregnancy. Vinay has gathered together statistics of 106 cases, 89 after parturition at full term and 47 after abortion.

Since the affection is due to a bacillus which enters the organism through an open wound, it can readily be seen that the

<sup>1</sup> Annal. de Gyn. et d'Obstet., July, 1895.

<sup>2</sup> Jour. Amer. Med. Assoc., Aug., 1896.

<sup>3</sup> Deut. Zeit., Bd. xxxvii.

<sup>4</sup> Zeit. f. Gyn. und Geb., Bd. xxxiii.

<sup>5</sup> Bull. Soc. Belg. de Gyn. et d'Obstet., No. 3. 1896.

<sup>6</sup> Arch. de Toc. et de Gyn.

traumatism of parturition affords an excellent opportunity for its entrance. A case is on record where a physician carried the infection on his hands from a laborer suffering from tetanus to a parturient woman.

The acute rather than the chronic variety of tetanus is the form observed after parturition. Its course is rapid; death usually occurs from the third to the sixth day. The longer the course of the disease the better the chance of recovery. The prognosis is worse than in surgical tetanus. The traumatism and pains of parturition and the loss of blood all contribute to unfavorable results. Of the 106 cases studied by Vinay there were 94 deaths.

*Mode of Infection.*—In studying the mode of infection it is necessary to find out what bacteria are usually found in the vagina of healthy women before and during pregnancy and labor. Gönner<sup>1</sup> has carefully investigated the normal secretion of the vagina in healthy pregnant women. He found it contains anaerobic bacteria, not such as cause primary septic endometritis, but those that can be easily introduced from without. Most authors, however, obtained different results from Gönner, and the careful investigations of *Bumm and Krönig* have proved that both streptococci and other pathogenic microbes are not infrequent inhabitants of the vagina of apparently healthy individuals. Most recently Döderlein<sup>2</sup> has investigated the vaginal secretions. He obtained the vaginal secretions of 195 pregnant women. These examinations demonstrated that there were two distinct types of secretions, which, according to their macroscopical appearances and chemical reaction, Döderlein classified as normal and abnormal. The normal secretions are the kind found in the virgin. Out of 195 pregnant cases he found this variety of secretion 108 times. The distinctive character of this so-called normal secretion is a whitish color, of the consistency of curdled milk, mingled with mucus, and of an intensely acid reaction. The pathological secretion he found 87 times. It has a yellowish color. Its reaction is usually acid, may be neutral, or even alkaline. In the normal secretion he found only the bacillus vaginæ; its presence causes the acid reaction and prevents the growth of pathogenic bacteria. In the pathological secretions cocci are present in large numbers, but the bacillus vaginæ disappears. All the animals into which the pathological secretions were injected became very ill. Wal-

<sup>1</sup> Cent. f. Gyn., No. 24, 1897.

<sup>2</sup> Arch. f. Gyn., Bd. xxxi.

thard<sup>1</sup> has contributed valuable information through the bacteriological study of the vaginal secretions in 100 women before and after labor. He states that the genital canal is divided into two parts, one infected, the other sterile. The former comprises the vestibule, the vagina, and the lower portion of the cervical canal. The latter consists of the upper portion of the cervical canal, the uterine cavity, and the tubes. In the vaginal discharges Walthard found, both during pregnancy and after labor, streptococci, staphylococci, gonococci, and colon bacilli. The first named were found in 27 cases, but these streptococci had lost all virulence. Inoculation into the normal tissue produced no result, but if introduced into the tissues of reduced vitality they caused abscesses in which micro-organisms rapidly regained their original virulence. Stroganoff<sup>2</sup> explains the sterility of the upper cervical canal and of the uterine cavity in all women, non-pregnant, pregnant, and puerperal, by the active germicidal properties possessed by the cervical mucus, by the mechanical action of the menstrual blood, the descent of the placenta and membrane during labor, and the outflow of lochia after labor. Vahle<sup>3</sup> found during the first twenty-four hours the vaginal secretions of new-born infants sterile; by the third day they contain micro-organisms and in a considerable proportion of cases staphylococci and streptococci.

Thus it is seen that nearly all types of bacteria capable of producing puerperal infection inhabit the healthy vagina. Nevertheless puerperal infection is comparatively rare, and the question is a natural one, "Why is puerperal infection so rare if the elements which produce it are nearly always present?" The answer is that while investigations show the presence of bacteria in the vagina of healthy women, they have also conclusively proved that the human organism is well capable of combating these bacteria, provided the normal functions are not disturbed and the vitality of the tissues is not lowered by useless manipulations and interference. Döderlein<sup>4</sup> states that the vaginal bacilli are antagonistic to staphylococci, which they have the power to destroy within certain limits. He repeatedly infected the vagina of virgins with staphylococci cultures in large quantities, but within four days these bacteria always disappeared and no bacteria remained within the vagina except the vagina bacillus. Döderlein attributes

<sup>1</sup> Deut. Med. Woch., 1894, p. 819.

<sup>2</sup> Monats. f. Geb. and Gyn., Bd. ii.

<sup>3</sup> Zeit. f. Geb. and Gyn., Bd. xxxii., Heft 3.

<sup>4</sup> Loc. cit.



this germicidal action of the normal vaginal secretion to the production of an acid reaction by the vagina bacillus. Krönig<sup>1</sup> also inoculated the vagina with pure cultures of streptococci and staphylococci, and found that none of these bacteria could be discovered after eleven to twenty-four hours. He thinks this is due to the outward flow of the vaginal secretions and not to any special microbe. According to him all secretions, whether alkaline, acid, or neutral, have germicidal power. Another important point gained from his experiments is the fact that *if disinfecting douches were administered the infecting microbes were not destroyed by the douche, but it took the vaginal secretions from nineteen to thirty-six hours to destroy microbes that without the douche would disappear in from eleven to twenty-four hours.* These observations were confirmed by Menge.<sup>2</sup>

*Prophylaxis of Puerperal Infection.*—Within the last few decades hardly a paper has been written on the subject of puerperal infection which did not refer to the achievements of Semmelweiss, of Vienna. Semmelweiss, a young assistant in the Vienna Maternity Hospital, noted the difference in the mortality rate in the two divisions of the hospital. The one which served for the instruction of midwives had a comparatively low death rate; in the other, where the students received their obstetrical instruction, the death rate from puerperal infection was something frightful. In studying the causes for this he observed the habit of the students coming fresh from post-mortem examinations to the bedsides of parturient patients, and conceived the idea that the students carried on their hands putrid products from the postmortem table to the lying-in women, and that these products were responsible for the large number of infections following examinations by the students. He established more rigid rules, and the students were required to thoroughly wash their hands in chlorine water before being permitted to examine a case of labor. The result of this simple precaution was more than startling and produced an immediate decline of the death rate from 11.5 to 1.27 per cent.

Whatever has been written and done since Semmelweiss only confirms the sagacity of his observations and proves more than conclusively that *puerperal infection is due, in the vast majority of cases, to the introduction of infectious material into the woman's system through unclean hands and instruments.* While it has been shown that the healthy

<sup>1</sup>Loc. cit.

<sup>2</sup>Arch. f. Gyn., Bd. xlviii.

organism is capable of protecting itself against the bacteria which almost physiologically inhabit the vagina, it is liable to succumb to puerperal infection if new crops of virulent bacteria are introduced at the time of labor. It was with this idea in mind that Leopold, of Dresden, pointed to the great dangers which accompany vaginal examinations, and he again and again published statistics from the clinic with comparative tables showing the greater morbidity and mortality in cases in which vaginal examinations were made, even under the strictest precautions, if compared with those cases where labor was permitted to proceed without unnecessary examinations. Leopold<sup>1</sup> advises the more frequent employment of abdominal palpation, and to restrict vaginal examinations to abnormal cases and as an aid to confirm the diagnosis gained by the abdominal method. The latter is safer, more reliable and satisfactory than vaginal exploration. This statement, at first much belittled, has now gained universal recognition, and text books recently published devote considerable space to the discussion of abdominal palpation, where formerly this important diagnostic method was either entirely ignored or passed by with a few lines.

It may not be amiss to briefly relate Leopold's method of abdominal palpation. The woman is placed upon her back with her limbs extended. The abdomen is exposed from the symphysis to the ensiform cartilage. The physician sits at the side of the woman, places both hands slightly flexed upon the abdomen so as to correspond to the convex surface of the uterus, and gradually carries them upward toward the fundus, where a lessened resistance is noted. This first method shows the size of the uterus, time of gestation, whether the child is in longitudinal or transverse position, and whether the head or breech occupies the fundus. The uterus is recognized by the intermittent contraction. Care should be taken not to mistake the bladder for the uterus, and the former should be emptied prior to an examination. The second method consists in the hands being placed at each side of the uterus; then under one hand is felt the arched back of the fetus, under the other the small parts indicating its abdominal surface. When the abdominal walls are thin the different parts may be felt with surprising clearness. The third method is very valuable in all cases where the presenting part is yet in the entrance of the pelvis, and a practised examiner can locate through this method

<sup>1</sup> Arch. f. Gyn., Bd. xl.

alone where the occiput and chin point to. The fingers of the right and left hands are spread out as much as possible, and the presenting part is seized between the thumb and middle finger. If it is round and hard it can only be the head, which can be grasped and moved. The breech is softer and its surface more irregular. Can no presenting part be felt, then one must look for the head in the fundus or sides of the pelvis. If the outlines of the presenting head and breech are indistinct, one has a right to suspect placenta previa. If labor is more advanced the fourth method of abdominal palpation is employed. The physician takes his place at the bedside, turning his back toward the patient's face. The hands are placed upon the patient's abdomen in such a manner that the finger tips are directed toward the cervix. During the intervals of pain the fingers are pressed down deep into the pelvis and the presenting part is grasped. The head is again recognized by its greater hardness and smooth surface. Auscultation should always be associated with abdominal palpation to verify the diagnosis. With heart sounds to the left in maximum intensity, the back of the child is directed to the left. When the back is posterior the heart sounds are loudest in the axillary line, and in breech presentation they are heard at a higher level. All these points of information can be gotten by even the inexperienced after a little practice; but it is important to remember that gentleness must always be preserved, as an undue amount of pressure results in exciting uterine contractions, during which the examination must be interrupted for the time being.

Many lying-in institutions and also numerous physicians employ the preliminary vaginal douche as a means of guarding against puerperal infection. Although statistics coming to us from some of these institutions are certainly excellent and their mortality rate surprisingly low, I am more and more convinced that its universal use is undesirable, and in the hands of many the so-called prophylactic douche will produce infection instead of preventing it. Romme<sup>1</sup> deprecates the routine injections and frequent exploration in normal labor. The virulence of the vaginal streptococci in a healthy pregnant subject, not officiously treated by the obstetrician and midwife, is equal to the streptococci of other mucous membranes, such as the alimentary canal. In other words, it is not virulent at all, and acts as a saprophyte on healthy tissues. But when the

<sup>1</sup> Archiv. de Gyn. et de Tocologie, February, 1896.

resistance of the tissues is diminished the streptococcus can acquire a degree of virulence sufficient to cause puerperal fever. Hence routine injections are deleterious in normal labor, and digital explorations are to be avoided, as the vaginal streptococcus might be introduced into the previously aseptic uterus.

In 1892 I published a paper<sup>1</sup> in which I showed the uselessness and the great harm which often follows this apparently simple manipulation. Since then further experience has tended to convince me of the correctness of these views, which have also been confirmed by the experience and investigations of other authors. I stated at that time that these douches did not and could not sterilize the vagina, but removed the mucus abundantly secreted during labor, and changed the slippery mucous surfaces into tissues upon which the head did not easily slide, but encountered resistance, producing abrasions and lacerations. These practical observations are confirmed by the investigations of Walthard,<sup>2</sup> who has shown, as mentioned before, that the genital canal consists of two divisions—an upper, which is sterile, extending to the internal os; and a lower, extending from there to the introitus, and usually the seat of the numerous micro-organisms.

Now, if prophylactic douches are necessary, these should not be restricted only to the vagina, but also include the lower uterine segment. While such practice might be safe in the hands of a few, it would no doubt lead to the most deplorable conditions and accomplish the opposite results from those desired if largely adopted. There is no doubt in my mind that the old maxim, “meddlesome midwifery is bad,” is to-day truer than ever. Mistakes in obstetrics are more of commission than omission. No woman will contract puerperal infection because she has not been douched, but many are daily infected by the so-called prophylactic douches.

A year or so ago I was consulted in a case which well illustrated the danger of prophylactic douching. As I mentioned before, I do not doubt that these douches may safely be administered in a number of lying-in institutions and also by careful physicians, but in general practice, where the conditions are very different from hospital practice, it is not a harmless manipulation, but a dangerous method. The case referred to was the following: I was called by a well-known physician to a case of puerperal sepsis. The woman was a young primipara

<sup>1</sup> Medical Record, January 23, 1892.

<sup>2</sup> Arch. f. Gyn., Bd. xlviii., Heft 2.



who had a rapid labor and was confined before the family physician could reach her home. A neighboring physician, who was called in in the emergency, arrived after the birth of the child and had only to express the placenta to complete labor. To his mind, however, his duty consisted in more than this, and, after delivering the placenta, he irrigated the vagina, and probably also the uterus, prescribing at the same time frequent douches, which were continued during the next two or three days. I found the woman suffering from marked puerperal sepsis, high temperature, rapid small pulse, pinched facial expression, abdomen enormously distended, uncontrollable vomiting combined with great abdominal pains—in fact, all symptoms of a virulent general peritonitis. The first object which met my eye upon entering the untidy, not to say dirty, rooms, was a fountain syringe with a glass tip, which had been used again and again with the view *to ward off* the dangers of puerperal fever. This glass tip was covered with blood and other secretions, and the source of infection was in tangible evidence. Much to my surprise, the patient recovered after a lingering illness extending over a long period. This illness, I am absolutely positive, would have been avoided if the patient had been simply let alone. It might be claimed that in this case gross carelessness existed, which is undoubtedly true, but in how many cases can careful asepsis be obtained?

To my mind prophylaxis against puerperal infection consists in clean hands, clean instruments—in fact, everything that comes in contact with the patient must be clean. It is desirable, but not essential, that the external genitals be disinfected. Whatever else is done is unnecessary and harmful. I still maintain and cling to the rules which I laid down seven years ago, and which have served me well in quite a number of cases met under various conditions and circumstances. I always try to avoid vaginal examinations, relying mainly upon abdominal palpation. He who has not examined a woman has surely not infected her. I never make a vaginal examination except with aseptic fingers and after a thorough cleansing of the external genitals. I administer vaginal douches only in pathological cases before and after operative interference, and I only operate with aseptic instruments. One who carries this out conscientiously will practise obstetrics with satisfaction to himself and safety to his patients.

*Various Forms of Infection.*—Puerperal infection, owing

to the peculiar anatomical conditions which exist during and after labor, differs from infections of the genital tract occurring in other periods of life. The symptoms of the infection and pathological conditions vary largely according to the causes of infection and its extent. It has therefore been customary to divide puerperal infection into different classes, and we usually find in the text books different chapters discussing the various types of infection. From my experience this is not advisable, for we rarely meet clean-cut types of the disease, and as a rule these cases, one may say, overlap each other. If a few points are borne in mind it can be easily understood how the symptoms of infection must vary and differ in almost every case. Thus, for instance, if a piece of placenta remains in the uterus, there undergoing putrid changes, the symptoms which we find are due entirely to the absorption of toxins. In another case we also have a putrid intoxication, but, besides this, pathogenic bacteria have entered the general circulation, and the picture of the disease reflects disturbances produced by the irritation of the bacteria in the organism and the absorption of toxins. Again, puerperal infection may remain localized in the lower portion of the genital tract, cervix, vagina, or vulva, in the form of ulcerations or abscesses, and in these cases, although they are strictly a puerperal infection which may even become general, the first symptoms are of a local character. While studying the various types of bacteria which are known to produce puerperal infection, it has been shown that some of the micro-organisms usually produce a distinct type of diseases. Thus, gonococcus infection usually remains localized and appears late. The tetanus bacillus produces the peculiar symptoms of tetanus. This has led me to divide puerperal infection according to the anatomical conditions and the bacteria present.

The form of puerperal infection most frequently met with appears as puerperal ulcers of the perineum, vagina, and cervix. These ulcers are due to a lack of cleanliness, the result of traumatism, producing a necrosis and sloughing, preventing primary union, and predisposing to the growth of bacteria. If these bacteria are of a virulent type the infection may spread and become general. As a rule, however, it remains localized. These ulcers have an unhealthy appearance; the adjacent tissues are swollen and edematous. The patient complains of burning pains at the seat of the slough, becoming intensified after urination. The temperature is elevated, at times preceded by a chill; the pulse is slightly quickened and full.

The best treatment, in my experience, is to thoroughly cleanse the parts with sterilized water, dusting the raw surfaces with aristol, and loose packing with sterilized or aristol gauze. I formerly made applications of strong solutions of carbolic acid or peroxide of hydrogen, but found that this treatment only retarded healing. What is wanted is to promote the growth of healthy granulation, which acts as a barrier against general infection. Under no circumstances should the interior of the uterus be invaded, for the infection is very easily carried into the uterus, and I am sure that in many cases intrauterine douches have produced serious cases of general infection.

*Pieces of placenta remaining in a uterus containing bacteria* will undergo putrefying changes, and, besides symptoms of putrid intoxication, the woman will also present symptoms of endometritis. These cases have a tendency to get well, especially if the cause of the trouble is removed. The symptoms of this form of infection are a rise of temperature, preceded by a chill, acceleration of pulse, headache, and general malaise. These patients, however, do not look very ill, and express themselves as feeling quite comfortable. The uterus is large and soft, painful upon pressure, and the lochial discharge has a decided odor. *This type is one of the most frequent complications of the puerperium, and is the "puerperal fever" usually cured by one or other method of treatment.* As mentioned before, these cases usually get well if nothing is done, but great harm may result from too much treatment. To properly treat these patients an anesthetic must be administered, the patient placed on a table, and, after a thorough preliminary disinfection of the vulva and vagina, the uterus should be irrigated with sterilized water. The interior of the uterus should next be thoroughly explored, preferably with the finger, and all shreds removed. This can usually be done; if not, a large, dull curette may be used. It must, however, be remembered that the walls of the uterus are easily pierced. After the shreds are removed I again irrigate with sterilized saline solution and loosely pack the uterus with aristol gauze. Ice bag over the uterus and the administration of large doses of ergot are the after-treatment, which I have found very valuable and generally successful. The intrauterine treatment should not be repeated, even if the patient is not doing well. When one is sure that all foreign substances have been removed nothing can be gained from a repetition, but much harm may follow. Many authors

advise against intrauterine treatment in these cases, but if done gently and thoroughly aseptically I can see no objection.

In patients who do not improve after this treatment, provided it has been thorough and all pieces of placenta and membrane removed, the infection is due to an invasion of pathogenic bacteria. In these cases the propriety of hysterectomy may come into question. As I have no personal experience with this operation in such cases, I shall refrain from criticising or recommending the operation. To my mind the difficulty lies in selecting the proper cases for the operation, and the question will always arise, would a successful case not have recovered without the operation? In some of the cases pieces of placenta were found in the uterus after its extirpation. These patients would probably have recovered if the decomposing fragment had been removed. This, as stated, is best done with the finger. The curette is less reliable. I met, about two years ago, with a case which well illustrates this. A young woman had been curetted by an experienced physician, without any improvement. I found the patient in a thoroughly septic condition, high temperature, rapid pulse, stinking vaginal discharge, etc. I had the patient deeply anesthetized, dilating the contracted cervix until I could introduce two fingers into the uterus, and was then able to remove a piece of stinking placenta nearly two inches in diameter. After this the patient immediately improved and within a short time was a well woman. If in this case the finger had been used instead of the curette, the piece of placenta could not have escaped discovery.

Diffuse septic peritonitis is usually a consequence of septic endometritis, and rarely the result of infection originating in the cervix or vagina. The symptoms are so well known that it is superfluous to repeat them. The most important and also earliest symptom is the marked cardiac depression, a result of the absorbed toxins. The pulse ratio is high and usually in disproportion to the existing temperature. The pulse curve crosses the temperature curve, and if traced on a bedside chart produces what the Germans designate the *Todtenkreutz*. Such a case once seen is forever imprinted upon one's memory. Who could ever forget such misery and suffering? Yet, strangely, in some of these cases, although death has already fastened its clutches upon the miserable being, the patients express themselves as feeling comfortable, and, perfectly conscious, take leave of their friends.



I do not think any operator can now raise any argument in favor of silk or silkworm gut nor against catgut as a suture or ligature. Catgut can be thoroughly sterilized without diminishing its tensile strength. It can be had in various and uniform sizes. It is as reliable as kangaroo tendon, and much better because it is round, of uniform thickness, and can be had in any length. It is much cheaper than kangaroo tendon. The knot of catgut, if properly tied, will hold as securely as silk, and this I have proved by its use in several hundred abdominal and plastic operations. Catgut can be rendered absolutely aseptic and still be strong. Catgut can be chromicized to any degree of hardness to resist absorption for almost any period desired and still be sterile and strong. Any material which presents these advantages cannot fail eventually to be the chosen one by all operators who have the best interests of their patients at heart and who desire to bring surgical technique and surgical convalescence as nearly to the ideal as possible.

With these few thoughts in favor of catgut as a ligature and suture, I wish to pass briefly to the consideration of the various methods which have been used in preparing catgut. All methods are defective which have for the basis of sterilization of catgut the boiling of it in alcohol. The boiling point of alcohol is 173° F., and catgut cannot be sterilized at that temperature even in alcohol. Gut thus prepared has been proved far too often to be anything but sterile. The method by dry sterilization, consisting in raising the gut gradually in a drying oven to 212° to 220° F., is fairly effectual, but the tensile strength is liable to be decreased; there are liable to be developed brittle spots which render it weak at those points. Boiling in cumol, whereby the gut can be raised to 250° to 350° F., is a reliable method, so far as sterilization is concerned. It is a very particular process and is liable to accidents which may spoil the whole batch in preparation. The details, as worked out in my own experience with it, are numerous. I used gut prepared by this method for nearly two years, doing it all myself, and I know whereof I speak.

The method now known as the formalin process is the simplest as well as the best so far discovered. I have prepared all gut for the past two years in this way, and, as a result of considerable experience with it and the quality of the gut so prepared, I can state unqualifiedly that for thorough sterility, complete tensile strength, and ease of preparation it is the

ideal method. This method has been described in a general way by Dr. Senn, but the details and technique, as worked out in my experience, render it so much easier and more effectual than ever before described that I give it here. I buy of J. Ellwood Lee Co., of Conshohocken, Pa., three-quarter inch glass spools by the gross. I then have them notched on each flange with a common triangular saw file. The catgut is then wound upon the spool tightly, in one layer, evenly, the ends passing over the flange of the spool in the notch; one end, longer than the other, after passing the notch, goes through the hollow barrel of the spool and is tied securely to the other shorter end, which has passed over the flange at the opposite end of the spool. By thus winding the gut there will be enough for one or two ligatures or sutures of good length. Gut prepared by this process tends to contract forcibly, and in this strain must be held securely or it will shrink and be useless. Therefore, by carrying the ends over the notches in the two flanges and tying them securely, you prevent it from unwinding from the spool or from shrinking. The knot must be carefully tied—first a single, and then a double one drawn taut. This is the secret of tying catgut to prevent slipping—reverse the surgeon's knot as tied with silk. Catgut thus tied, if the ends are not cut too close to the knot, will never slip if drawn tightly. The object of winding a single layer, evenly, is to prevent overlapping or crossing of one strand over another. If in the process of soaking in formalin and the consequent shrinking one strand crosses another, the one next to the glass will be so pressed upon as to prevent the hardening at that point. When the gut is boiled in water later, that point will become gelatinized and will break on the slightest strain. Wind the gut on the spools raw as it comes from the dealer, without any previous preparation. The solution of formaldehyde used is a three per cent in plain water. As formaldehyde comes in a forty per cent solution, one part of this in thirteen parts of water gives the three per cent solution used. This should be kept in a well-corked, wide-mouth bottle; a common fruit jar answers every purpose. One solution may be used indefinitely for almost any number of batches of gut, provided the jar is kept well corked. It is not necessary to make a fresh solution for each batch prepared. Now immerse the spools in the formalin solution for different periods of time, according to the sizes of the gut being prepared. Very fine gut, No. 0, should remain in about one hour. Sizes No. 1, No. 2, and No.

3, which are those most used for ligating vessels, stumps of tumors, sewing tissues, abdominal wounds, etc., are kept in three, five, and seven hours respectively. If left too long in the solution the gut will become too hard, too brittle, and its strength will be impaired. After removing from the formalin solution the gut should be washed in running water for a period as long or longer than it was in the formalin, the object being to wash away all the formalin. This is very essential, otherwise the formalin will keep on hardening the gut and eventually spoil it. A favorite method with me is to attach a rubber tubing to the faucet at my wash bowl and carry it to the bottom of a basin or some other vessel in which I place the spools of gut. The water going through the tubing to the bottom of the vessel and running over at the top constantly keeps the water changing. If the spools lie in the water twenty-four hours the gut will not be harmed in the least. Up to this time the catgut is not sterilized. It has simply undergone in the formalin a chemical process in its fibres whereby it can be subjected to the temperature of boiling water without spoiling it. The sterilizing process, therefore, consists of boiling it in water for fifteen minutes. The receptacles in which it is to be kept should be boiled also. Then with sterile forceps place the spools, each size by itself, in wide-mouth, ground-glass-stoppered bottles or in rubber-sealing fruit jars, sterilized as before suggested. Pour over the gut clean alcohol (ninety-five per cent) with eight to ten per cent of sterile glycerin. To sterilize the glycerin it should be placed in a bottle in water and raised to the temperature of boiling water for half an hour.

Catgut so prepared and so preserved will always be found to be sterile, strong, and reliable. I have some now two years old and it is as strong as ever. I do not know any reason why it should not keep unimpaired indefinitely. Another and economical advantage of gut so prepared is, if part of a spool is not used it need not be wasted. If the ends are securely tied over the flange it may be thrown into boiling water for a few moments and again put back into the alcohol and glycerin as good as before.

To make chromicized gut I have the spools wound the same. The fat in the gut need not be removed, as formerly taught, by immersion in ether. The spools are placed in a solution of bichromate of potassium, 1.5 grammes (23 grains); glycerin and carbolic acid, each 10 cubic centimetres ( $2\frac{1}{2}$  drachms); and water, 1 litre (1 quart). Allow them to remain in this solution

twenty-four hours. Then take out and allow to drain and dry for a few hours. Then place them in the formalin solution and go through the same process as with the formalin gut above described. This produces a gut which will resist absorption about six weeks in all tissues except the peritoneum or kidney.

The plain formalin gut will remain about one week to ten days before it is absorbed. Ten days to six weeks is as long as any need exists for ligatures or sutures for any purpose. Therefore I claim for catgut so prepared all the points of merit which can be demanded by the most exacting for a ligature and suture material.

64 RICHMOND AVENUE.

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### A METHOD OF PREPARING CATGUT.<sup>1</sup>

BY

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THE question of catgut is interesting to all of us, and I cannot help feeling that a description of the method of preparing a gut which for the last nine months has been perfectly satisfactory to me would be of interest to the Section.

The various forms of catgut which are usually employed have, as we all know, distinct disadvantages. The cumol gut, while very satisfactory in many respects, does not last long enough, is very troublesome to prepare, and is handled too much in the course of its preparation. The chromicized gut lasts too long in the tissues and very often must be removed.

Catgut prepared by boiling in alcohol, after immersion in juniper oil, has the disadvantage of never being surely sterile and of disappearing too soon in the tissues. It was quite a shock to me to find that boiling in alcohol at 240° F. did not necessarily sterilize catgut. Dr. Lainé, however, proved this proposition conclusively. He was able to cultivate the anthrax bacillus after boiling the gut in an autoclave sterilizer under high pressure at 240° F.

Being dissatisfied with all the catguts with which I was familiar, I devised a plan of my own, made up in great part of

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, January 19, 1899.



suggestions from others, and the combination of methods has given me a result which now yields me perfect satisfaction. The catgut is prepared by soaking in benzine for twelve hours to eliminate the fat. It is then dried on a piece of blotting paper, and then soaked in sterile water in order to make it receptive and absorptive, after which it is immersed in a five per cent solution of formalin over night, about fourteen hours. It is then washed in sterile water to remove the excess of formalin, and stretched on a form such as Edebohls uses for chromicized gut, and is allowed to dry for four or five days in a well-heated room until absolutely dry. It is then wound on a conveniently large wooden spool, so that the



Half natural size.

coils will not cross each other, and is finally put in a ten per cent solution of glycerin in absolute alcohol. It is then sterilized for from forty-five minutes to an hour in a metal cylinder with a tight screw cap, which is put in an autoclave sterilizer and kept at  $240^{\circ}$  F. In this way the catgut is made absolutely sterile throughout. The formalin soaks into its interior and not only makes it aseptic but antiseptic. Micro-organisms cannot be cultivated on catgut treated with formalin.

The durability of the gut is increased exactly to the right extent. It will last seventeen days in the vagina, as I know from having observed it in many plastic operations for a period of nine months, and it lasts a longer time when buried in healthy

tissue. In the fascia of the abdominal wall it endures about three weeks before it gives way at all, but it is entirely gone in between three and four weeks. In this respect it is a perfectly ideal suture material, as three weeks is about the time we desire our sutures to hold. During the whole time I have used it I have not had a single wound break down, except in operations for puerperal or other infections of the pelvis in which I have been obliged to drain the pelvis and have had a quantity of purulent fluid flowing over the wound. On account of its durability, absolute cleanliness, and antiseptic properties I find this gut entirely satisfactory. It is as strong as catgut can be expected to be. Its tensile strength is about equal to that of cumol gut. Its flexibility is much greater than the cumol gut. The addition of the glycerin in its preparation makes it as soft and pliable as silk.

In closing the abdomen with this catgut, I have no peculiar method for sewing the abdominal wound, but use the plan which I suppose most of us employ—namely, sewing the peritoneum and fascia separately with strands of catgut and using an intracutaneous stitch of silk in the skin. My method of closing the abdomen may be a little peculiar, in that I use two or three through-and-through interrupted stitches of silkworm gut as splints to the wound, which are removed in two weeks, and sew up the fat and superficial fascia with fine catgut in two layers.

1821 SPRUCE STREET.

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## HYSTERECTOMY FOLLOWING DOUBLE OVARIOTOMY FOR MALIGNANT ADENOMA.<sup>1</sup>

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BY

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Philadelphia.

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HAVING been so closely identified with the advocacy of the removal of the uterus in cases where it became necessary to sacrifice both ovaries, it is hard for me to refrain from bringing home to those gentlemen who opposed and are still opposing this method of procedure the dangers to their patients of their continued opposition.

It has always seemed to me, and still, in spite of all that has been said to the contrary, seems axiomatic, that "both ovaries

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, January 19, 1899.

being removed, the uterus is an utterly useless organ in the female body." I believe this to be so in spite of the much-discussed uterine influence on the female, the supposed increase of the menopause symptoms following the operation, the ever increasing sentimental talk of mutilation, and the equally absurd dictum that the surgeon's knife should touch no part not already hopelessly diseased, as well as the many learned discussions on the dynamics of the pelvis.

It is well known that many of the diseases which eventually require the removal of both appendages have in their incipency attacked the uterus and not infrequently have left it permanently impaired. It is equally a fact that impaired tissue is prone to take on degenerative changes, especially if there is a tendency toward such a development. What excuse, then, can be offered for an opposition to the removal of tissue already diseased or useless, and with many possibilities and probabilities of future disease, is beyond my ken.

It is nothing to say, "I have removed the appendages fifty or one hundred times and have but seldom found it necessary subsequently to remove the uterus." If one case of the hundred develops cancer, for instance, in the future, had it not been better to have originally removed the whole hundred useless uteri? If four or five more cases continue to suffer from their pains and aches and muco-purulent discharges until the uterus be removed at a second operation, is not the reason more convincing for a primary completed operation?

It has been my fortune in the past to report a number of secondary operations following both my own incompleting work as well as that of other operators. To-day I am impelled, by the recent papers partially or totally condemning this procedure, to place on record an experience so convincing that "he who runs can read." I am desirous also of combating the statements recently made that the operation of removal of the uterus together with the appendages is becoming less frequent, and to assert that quite the contrary is true, and properly so.

The following case is an illustration of one phase of the matter under discussion:

Mrs. G., married, age 41, applied to Dr. John M. Bertolet, of Reading, during October, 1897, for relief from womb trouble. The menses first appeared at the age of 14 years and were regular and painless. About twelve years ago (two years after her marriage) menstruation became very painful and profuse. This increased until she menstruated constantly, never being

entirely free from the flow. The continued drain gradually prostrated her, until finally she became a physical wreck. Styptics to the interior of the uterus, fluid extract of ergot, and other remedies failed in controlling the hemorrhage. Curettage of the uterus was performed by Drs. Bertolet and J. L. Bower on October 26, 1897, under ether. The patient bore the operation well and it appeared to be successful. She gained rapidly in weight, and the anemia from the excessive loss of blood was corrected by the administration of Blaud's pills, with the addition of arsenious acid. On January 18, 1898, the patient returned, complaining of her old trouble. Fluid extract of ergot was again tried without the slightest effect in reducing the sanguineous flow. She became gradually worse, bleeding more freely.

Operation was proposed to her, with the hope that if the ovaries and tubes were removed the hemorrhage would cease. This was the more determined upon as a thorough vaginal examination at this time revealed a cystic tumor apparently the size of an orange. The presence of this in the left ovarian region caused the patient a great deal of pain, and in connection with her hyperemic condition rendered her so miserable that life was becoming a burden. An abdominal section was performed by Dr. Bertolet on the 23d of February, 1898. The cyst proved to be the left ovary and was removed together with both tubes and the right ovary. The uterus was quite large and congested, but was not disturbed. The patient stood the operation very well and made a good recovery. She returned to her home in four weeks practically well and remained so until July, nearly four months after the operation.

Dr. Bertolet was hurriedly sent for one night about the middle of July, and found the woman almost exsanguinated from a profuse hemorrhage. The vagina was packed with gauze, and ergot was given in full doses. The flow was for the time controlled, but when the packing was removed it again returned. This state of affairs kept up until October 4, 1898, when the curette was again used. At this sitting a great amount of endometrial débris was removed.

This curettement did practically no good, as far as the cessation of the hemorrhage was concerned, and the patient was advised to have the womb itself removed. To this she reluctantly consented, and I performed the operation, assisted by Dr. Bertolet, on the 8th of December, 1898, at the Reading Hospital. Owing to the adhesions of the omentum and intes-



tines the operation was an exceedingly difficult one. The bowels of necessity were injured at several points and required extensive stitching. The omentum required ligation and partial amputation to control hemorrhage, and the bladder itself was subjected to repair with catgut sutures. The uterus was finally removed. The patient made an excellent recovery and left the hospital at the end of three weeks.

On laying the uterus open it was found to contain a fine specimen of fungoid growth, which, after careful microscopical examination, Dr. H. L. Williams pronounces a case of primary adenocarcinoma.

*Pathological Report.*—"The specimen consists of the uterus, amputated just below the internal os, from which the appendages have been removed on both sides. It measures  $3\frac{1}{2}$  inches in length, 3 inches in width, and  $2\frac{1}{2}$  in its antero-posterior dimensions. The posterior wall is  $1\frac{1}{4}$  inches thick, the anterior wall  $\frac{3}{4}$  inch thick, and the fundus is  $\frac{5}{8}$  inch thick. The specimen has been split through the posterior wall from fundus to cervix. The uterine muscle feels hard and elastic, and in its outer portion appears whitish and normal to the eye. The internal os is seen to be open. Filling the entire uterine cavity is a soft, spongy, and friable material, almost granular in appearance on the surface, and of a pinkish color. In places this extends out into the uterine cavity in flattened polypoid masses. This is seen especially upon the posterior wall. This diseased appearance of the mucous membrane is also seen to extend into both uterine cornua.

"*Microscopical Examination.*—*Section cut from thickened endometrium on the posterior wall:* A most marked hyperplasia has taken place in the glandular elements, and atypical glandular structures are the conspicuous elements of all fields of the section. These are separated from one another in some instances by slender septa of connective tissue. The glandular outline and arrangement is well preserved, but the epithelial lining has proliferated into several layers, in some instances completely filling the glands, in other instances breaking out into the stroma and replacing the connective tissue between adjacent glands or branchings in the same gland. In nearly all portions, under the high power, the stroma is seen to be more or less infiltrated with epithelial cells. The epithelial cells themselves are large, irregular in size, with oval, granular nuclei which take the stain deeply. Karyokinetic figures are not conspicuous. In the deeper portion of the

section the glandular structure can be seen to have invaded the muscular wall of the uterus, presenting a honeycombed appearance, in which the glands resemble acini in a reticulum of fibrous and muscular tissue. In some fields the epithelial proliferation has been so extensive that the glandular arrangement has been entirely destroyed and the cells diffusely scattered throughout the tissue. The muscular wall is, however, only invaded for a short distance, and the greater part of its thickness is entirely normal in appearance.

“*Diagnosis*.—Primary adenocarcinoma arising from the mucous membrane. HENRY L. WILLIAMS.”

Further comment on the case seems unnecessary. It is only one more instance of a group of cases which gives comfort to and confirms more fully the opinion of those operators who believe in the wisdom of hysterectomy where double ovariectomy has become necessary, and who have faith in that kind of conservatism which saves their patients from possible future suffering and danger, as well as from possible and unnecessary secondary operations with all their attendant risks to life, without in the slightest way doing them any damage.

1722 CHESTNUT STREET.

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## TWO CASES OF OBLIQUELY CONTRACTED PELVIS WITH ABNORMAL MECHANISM OF LABOR.<sup>1</sup>

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BY

EDWARD P. DAVIS, M.D.,  
Philadelphia.

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THE shape and symmetry of the normal pelvis arise not only from inherent tendencies in evolution, but also as the result of the action of muscles during the younger life of the individual. The exercise of walking, so common and so essential in muscular development, has an important bearing upon the development of the pelvis. Not only have some of the muscles connected with walking and the maintenance of the erect posture attachments to the pelvic bones, but the weight of the body transmitted through the necks of the femurs tends to stimulate the development of the two lateral surfaces.

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, January 19, 1899.

Obliquely contracted pelves may be caused by the encroachment of bony tumors developing at the sacro-iliac region; by impacted fracture of the neck of the femur, driving inward the lateral pelvic wall; or may accompany some severe general lesion of the skeleton. In the cases which I report none of these causes was present. In one an accident prevented the patient from walking during the period when the pelvis was developing, and in the other a disease of the nervous system made the use of the right lower extremity imperfect and thus removed the stimulus which its free employment gives to the development of the pelvis.

Referring to the mechanism of normal labor, it will be remembered that the right oblique diameter of the pelvic brim is usually larger than the left, and that both oblique diameters in well-developed persons are the largest and ample to permit the descent of the normal head. In fact, the oblique diameters of the pelvic brim may be termed the working diameters of the pelvis, because the passage of the fetus to the pelvic floor usually happens in these diameters, and because artificial labor or instrumental delivery is best accomplished in the same way. Thus not only does the fetal head descend through the pelvis in the right oblique diameter, but the shoulders follow in the same, and the use of forceps before rotation has occurred is best accomplished by applying the instrument to the sides of the fetal head in this diameter. Dystocia depending upon impaction of the trunk or shoulders is best relieved by bringing the child's body into an oblique diameter of the pelvic brim. It is evident, then, that in cases where the right oblique diameter of the pelvis has been lessened by the presence of a foreign growth or lack of development a normal mechanism in labor cannot be expected. Nature, however, following the principle of accommodation, will cause the child to engage and to pass through the pelvis in the largest available diameter, and hence the left will be utilized when the right is diminished. The following cases suggest these remarks and illustrate the principles involved.

The following is the history of a case of obliquely contracted pelvis at present under my care at the Philadelphia Hospital:

CASE I.—E. R., age 21, gives an indefinite family history. She married at 15 and has one child 5 years old and has had no miscarriages. A general examination of the body revealed no abnormalities so far as the viscera were concerned.

She is positive that both her grandfathers suffered from paralysis. She has four uncles, her mother's brothers, who are also paralytics. She walked at the age of 11 months, and gives a history of attacks of convulsions at irregular intervals since her marriage. She walks with a limp, dragging the right foot and leg, which are wasted, the foot being turned inward. The right lower extremity is shortened one and three-quarter inches. The knee jerk is absent and there is slight anesthesia. An examination of the urine was negative. The patient's pelvis measured as follows: iliac spines, 23 centimetres; crests, 25 centimetres; external conjugate, 19 centimetres; right diagonal, 21 centimetres; left diagonal,  $24\frac{1}{2}$  centimetres; distance between trochanters, 28 centimetres; circumference of right half of pelvis,  $18\frac{1}{2}$  centimetres; circumference of left half of pelvis, 19 centimetres; length of right leg,  $27\frac{1}{2}$  centimetres; length of left leg,  $29\frac{1}{4}$  centimetres. The back of the fetus was directed toward the left side of the mother, the head was presenting, and the heart sounds were plainly heard.

Soon after the patient came under observation labor began and was spontaneous. The head entered the pelvic brim in the greater left oblique diameter. It passed readily downward to the floor of the pelvis, the body of the child and the uterus being thrown strongly forward by vigorous contractions of the round ligaments. When the birth of the head occurred the right or posterior hand presented beside the head, the occiput rotated to the right, and the right shoulder was born first over the perineum. The child weighed five pounds eight ounces; the placenta, one pound one ounce. The child was well developed and well nourished.

CASE II. was recently confined in the Jefferson Maternity. A. F., age 18, had the usual diseases of childhood and enjoyed good health until the age of 9. She then had an injury to the right knee, resulting in compound fracture, and followed by infection of the joint. Stiffness and loss of motion resulted, for which four years ago the knee was resected. Two years later the patient again injured this knee by an accident.

On examination her general condition was excellent. Her pelvic measurements were as follows: anterior superior spines, 22 centimetres; crests, 24 centimetres; trochanters,  $29\frac{1}{2}$  centimetres; right diagonal,  $20\frac{1}{2}$  centimetres; left diagonal, 22 centimetres; external conjugate, 22 centimetres; circumference, 82 centimetres. The position of the fetus was not typi-



cal, the back lying near the median line, very slightly turned to the left. The head was at the pelvic brim. When labor occurred the head passed through the pelvic brim with the occiput to the right, thus engaging in the left oblique diameter, which was the larger. The shoulders followed in the same diameter, and when born the head rotated toward the left thigh. This seemed to result from the continuous presence of the body of the child in the left oblique diameter. As the patient was strong and remarkably well developed, birth was rapid and without assistance. When this pelvis was examined by palpation, the comparison between the two halves of the pelvic cavity was very striking. The right was distinctly less spacious than the left. There was a marked shortening of the right thigh, but the patient's general health and development was exceedingly good.

In cases of pronounced deformity following a severe injury or important lesion, it has been shown by Litzmann, Winckel, and others that the affected half of the pelvis is pushed outward in disease of the skeleton, and that the greater contraction is apparently upon the healthy side. This can only be true, however, when the disease which is present is such as to cause unusual softening in one side of the pelvis. Litzmann's statement that, in cases in which the function of one lower extremity has been interfered with or destroyed, the deformity affects the healthy side, is not easy to understand.

The prognosis for delivery in obliquely contracted pelvis, where the deformity is considerable, is very bad. Writers agree in forbidding efforts at delivery by version or forceps where the deformity is considerable. Winckel reports a successful delivery by forceps in a pelvis not highly contracted, while Lusk induced labor at twenty-nine weeks of gestation in an obliquely contracted pelvis and delivered by version a child which gasped but did not breathe. In high grades of contraction delivery by abdominal section is always indicated. Symphyseotomy is not available in these cases, because the opening of the pubic joint will not correct the deformity.

The cases reported serve to illustrate the pathology of the condition and its influence upon the mechanism of labor.

SIMULATED PERITONITIS IN AN HYSTERICAL WOMAN.<sup>1</sup>

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BY

GEORGE WYTHE COOK, M.D.,

Washington, D. C.

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THE protean malady, with its striking vagaries, is a most interesting and perhaps the most curious in its manifestations of all the ailments to which flesh is heir. It is remarkable that the name hysteria has been so long retained to designate the many phenomena that are classed under this head, when there seems to be not the slightest relation between the phenomena and the uterus or its appendages. Indeed, we not infrequently see cases in the male in which the manifestations are similar to those occurring in the female, and to both of which the name hysteria is applied. The term has always been an offensive one, and if its application could be limited to those cases in which the "generation zone" is undoubtedly involved it would conduce to simplicity of classification, and efforts at cure would leave untouched the female generative organs, that have been so often needlessly sacrificed, and the sting of an opprobrious epithet would be much less frequently felt. One of our Fellows, Dr. A. F. A. King, has graphically portrayed, in an essay before this Society, the condition to which the term hysteria should be limited.

The case which I shall now report does not seem to involve the "generation zone," but is clearly one of those that would ordinarily be denominated hysteria; and without venturing to suggest any new names, it may not be inappropriate to give here a few definitions of hysteria taken from standard authorities.

T. Buzzard, in Quain's "Dictionary of Medicine," gives this definition: "Hysteria is a term the etymology of which is misleading and had best, therefore, be disregarded. It is often improperly applied to cases of simple malingering, and others which do not admit of ready explanation. Its use is best restricted to a condition of the nervous system fairly defined, but the intimate pathology of which is not known,

<sup>1</sup> Read before the Washington Obstetrical and Gynecological Society, November 18, 1898.

characterized by the occurrence of convulsive seizures and by departures from normal function of various organs, leading to very numerous and often perplexing symptoms. These are apt to simulate those commonly arising from definite alterations of structure, but differ from the latter in the fact that they may often, even when at their worst, be removed instantaneously, usually under the influence of strong emotion. It would seem that there is a disturbed or congenitally defective condition of the cerebral substance, involving in all cases the highest nervous centres, and in various examples extending more or less also to some of those which preside over automatic phenomena."

Foster's "Encyclopedic Medical Dictionary" (1892) says that hysteria is "a functional affection of the nervous system, which is almost limited to women, and more frequently to young unmarried women who have no settled occupation or aim in life. It was long supposed to proceed from some disturbance of the uterus (hence the name). Latterly competent investigators have referred the source of the trouble to the ovary. Hammond expresses the opinion that ungratified sexual desire is not an exciting cause. The affection consists in a voluntary or involuntary imitation of some pathological condition, and the field covers the entire range of diseases susceptible of imitation. No lesion of the brain, spinal cord, or sympathetic system has ever been found to account for the phenomena, but from the character of those phenomena Hammond claims hysteria as a cerebro-spinal disease."

Horatio C. Wood, in "An American Text Book of the Theory and Practice of Medicine," edited by William Pepper (1893), says that hysteria is "a functional disorder of the nervous system, characterized by depression of the will power, exaltation of the emotional nature, and an infinitude of shifting, polymorphic nervous disturbances more or less clearly simulating various organic diseases."

C. L. Dana, in "Text Book of Nervous Diseases" (1897, fourth edition), says: "Hysteria is a chronic functional disorder characterized by nervous crises of an emotional, convulsive, or other nature, and by an interparoxysmal state in which certain marks or stigmata are present. Hysteria is essentially a psychosis, and the dominant symptoms are attributable to disorder of the cortical areas of the brain. Its components are the paroxysms, or 'crises,' as they are called, on the one hand, and the peculiar symptoms of an interparoxysmal state on the

other hand. The disease is to be regarded as a definite one, having a certain, as yet unknown, pathological basis underlying it. The use of the word should be much more restricted and definite than has hitherto been the fashion."

These definitions justify the designation of the following case as one of simulated peritonitis in an hysterical woman.

Mrs. J. K., white, age 26, married, mother of two children, consulted me in the spring of 1897, complaining of nausea and excessive acidity of the stomach. Her youngest child was 2 years old, and she said she believed she was again pregnant, because the digestive symptoms were such as she had experienced in her former pregnancies. It turned out, however, that she was mistaken. The nausea and acidity continued, and in addition she said she had several times vomited blood. There was considerable pain in the epigastric region, which was much aggravated on pressure. I judged the condition to be one of peptic ulcer, and instituted treatment which seemed to relieve her. She, however, became pregnant in the following September, when her gastric symptoms became worse again. She miscarried about the 1st of November and had considerable hemorrhage. The stomach trouble now became so much exaggerated that she was unable to retain anything. She had to be sustained by nutrient enemata for two weeks. She came very near to death's door, but finally rallied and was able to take nourishment by the mouth, and for a time improved rapidly. But the gastric trouble returned, and she seemed to suffer greatly from acidity. She took very little food, though she was not as much emaciated as might have been expected. Her face and lips were of good color, and indeed she said there was too much blood in her head and suggested that bleeding might do her good. She said that she had several times coughed up some blood. I examined her lungs, but found no evidence of disease there. Her family were extremely anxious about her and suggested that she be sent to New Mexico, where a friend of theirs who had some lung trouble had been much benefited. It seemed to me almost cruel to send one who was so weak and emaciated on so long a journey when in all probability she would die by the way. They, however, were determined, and she too was anxious to go, so her husband took her to Albuquerque the latter part of May this year. I heard frequently through her family that there was no improvement in her condition, but rather that she was worse, and the physician under whose care she came held out no hope of



I do not think any operator can now raise any argument in favor of silk or silkworm gut nor against catgut as a suture or ligature. Catgut can be thoroughly sterilized without diminishing its tensile strength. It can be had in various and uniform sizes. It is as reliable as kangaroo tendon, and much better because it is round, of uniform thickness, and can be had in any length. It is much cheaper than kangaroo tendon. The knot of catgut, if properly tied, will hold as securely as silk, and this I have proved by its use in several hundred abdominal and plastic operations. Catgut can be rendered absolutely aseptic and still be strong. Catgut can be chromicized to any degree of hardness to resist absorption for almost any period desired and still be sterile and strong. Any material which presents these advantages cannot fail eventually to be the chosen one by all operators who have the best interests of their patients at heart and who desire to bring surgical technique and surgical convalescence as nearly to the ideal as possible.

With these few thoughts in favor of catgut as a ligature and suture, I wish to pass briefly to the consideration of the various methods which have been used in preparing catgut. All methods are defective which have for the basis of sterilization of catgut the boiling of it in alcohol. The boiling point of alcohol is  $173^{\circ}$  F., and catgut cannot be sterilized at that temperature even in alcohol. Gut thus prepared has been proved far too often to be anything but sterile. The method by dry sterilization, consisting in raising the gut gradually in a drying oven to  $212^{\circ}$  to  $220^{\circ}$  F., is fairly effectual, but the tensile strength is liable to be decreased; there are liable to be developed brittle spots which render it weak at those points. Boiling in cumol, whereby the gut can be raised to  $250^{\circ}$  to  $350^{\circ}$  F., is a reliable method, so far as sterilization is concerned. It is a very particular process and is liable to accidents which may spoil the whole batch in preparation. The details, as worked out in my own experience with it, are numerous. I used gut prepared by this method for nearly two years, doing it all myself, and I know whereof I speak.

The method now known as the formalin process is the simplest as well as the best so far discovered. I have prepared all gut for the past two years in this way, and, as a result of considerable experience with it and the quality of the gut so prepared, I can state unqualifiedly that for thorough sterility, complete tensile strength, and ease of preparation it is the

given at once, which had the effect of producing several liquid movements. The distension not being wholly relieved, I directed some three-grain pills of asafetida, one to be given three times a day. The next morning I was sent for hurriedly, and found her suffering a good deal of pain and the abdomen being much distended. I gave hypodermatically one-quarter of a grain of sulphate of morphia with one one-hundred-and-fiftieth of atropia and directed hot applications to the abdomen. I called again in the afternoon and found her suffering greatly and vomiting. The abdomen was enormously distended, the legs were drawn up, and pillows were placed at her sides to prevent the cover from touching her abdomen, as it gave her great pain. Her face was somewhat pinched; the pulse was 100 and the temperature 99° F.—altogether presenting the picture of peritonitis, except that the pulse was not as small and frequent as would be expected. I at once concluded that the gastric ulcer which I supposed had existed had perforated and that peritonitis was present. I so informed the family and announced that nothing but opening the abdomen could save her, and that even that would give her only a slim chance. The patient protested and said she would rather die than have an operation. In the evening, however, it was agreed that I might bring in a surgeon to see her. Dr. John Van Rensselaer kindly and promptly answered my summons. After examining the case he agreed that there was a peritonitis, but thought it was circumscribed, and suggested that the pulse was not such as would be present in general peritonitis, though all the other indications were present. He counselled delay, and advocated the continuance of the morphia and suggested the application of the ice bag to the abdomen. I confess I was much disappointed at these suggestions, as I thought that if any hope remained for the woman it was in immediate opening of the abdomen, suturing the perforation, and washing out the peritoneal cavity. Certainly, if any operation was ever to be done, it must be done at once.

A quarter of a grain of morphia sulphate was directed to be given every four hours, provided it did not stupefy, and the ice bag was to be continuously applied to the abdomen. The next morning we saw her again. The pain was not so great, the pulse was 90, the temperature 99° F., and the expression of her face better. The treatment was continued, with the addition that four ounces of a saturated solution of sulphate of magnesia were given per rectum. This latter produced two

liquid movements. I saw her several times during the day, and observing that her condition did not grow worse, but rather better, I began to doubt the correctness of my diagnosis, and at the next morning's consultation suggested the possibility of an hysterical condition. In this suggestion Dr. Van Rensselaer concurred. In examining the patient a little later, I observed that the left leg was rigidly extended and the toes of that foot were violently flexed, while the right leg was drawn up and the toes of that foot flexed, though not so strongly as those of the left foot. With this discovery my chagrin was extreme. An enema of four ounces of emulsion of asafetida dissipated the whole thing. Here was a patient who apparently was suffering from a violent perforation peritonitis, her symptoms and previous history justifying such belief, upon whom I was anxious to have one of the gravest operations known to surgery done, yet she was for the time being cured by an enema of asafetida.

You may say that a little more diagnostic skill would have obviated any such mistake, but that is after-wisdom. I might cite instances in which distinguished and skilled diagnosticians, both medical and surgical, have been deceived by the simulations of those affected with the curious disease we call hysteria

3 THOMAS CIRCLE.

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## A CASE OF MULTIPLE PREGNANCY.

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BY

JENNIE G. DRENNAN, M.D.,  
Kingston, Ont., Can.

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THE following case is reported with the hope that it may be of interest to some one, even if to no other than the statistician.

Mrs. H., æt. 25, was a strong, healthy woman. On October 5, 1897, at 10 P.M., I was called to attend her in confinement. I had never seen her before; for, being one of those easy-going women who slowly drift along without apprehending any danger at the time of their accouchement, she had not thought it necessary to engage a doctor. On arriving I found her in labor, which had commenced about 8 that evening. While preparing my hands to make a vaginal examination, I ascertained from two women who were present that the patient had had excellent health throughout her pregnancy, but, the week

before, had fallen downstairs. From this fall she had felt no inconvenience save a few bruises. There had been no indications of abortion, and as her abdomen was so much distended they thought she had gone her full time, or rather, in other words, they seemed desirous of knowing whether I considered it a full-term pregnancy. I found out that she had been married the preceding March, being now married seven months.

Knowing that there are many causes which would lead to distension of the abdomen besides a full-term pregnancy, I waited until I had made my vaginal examination. I found the os soft and partly dilated, and a mass protruding from it which had a rather soft feel, with here and there a hard spot, as if I were touching a mass of small bones enclosed in a soft sac. Feeling sure it would be delivered in a short time, as the os was very well dilated and the labor pains were good, and knowing it was now too late to prevent the abortion, I let Nature do her work, being ready to aid her if the slightest indication should arise for doing so. This protruding mass, which caused me some uncertainty, had no appearance of being part of a full-term fetus. I knew it was not a placenta previa, as it had not the feel of placental tissue, unless the latter had undergone calcareous degeneration. It did not impart the sensation of being the elongated pouch of membranes in a breech presentation. It seemed to be a sac containing a mass of small arms and legs, and I was led to conclude it was an abortion of a young fetus; but then, on the other hand, there was the much-distended abdomen and the suspicious behavior of the attendants. In a short time the protruding mass was expelled and proved to have been the presenting portion of a very well-developed fetus of five months. Just after its expulsion it gave a faint sigh or quiver and then remained perfectly lifeless. On passing my finger up the cord I felt another protruding mass, which was not the placenta. On further examination an arm, which was perfectly limp, presented and came down into the vagina. At once I knew I had a case of twins. As the uterus was by this time inert, and as the second fetus was so small, I hastened its delivery by digital aid and delivered a very small fetus of the same age as the former. Much to my amazement, this was followed by another of the same size. Both were flaccid and had evidently been dead for some days. Immediately on the delivery of the third fetus a small placenta, to which the two cords of the last two fetuses were attached, was expelled. This had the appearance of having



been detached from the uterine wall for some time. It had no signs of being a functioning placenta. It was shrivelled and the two cords were thin and collapsed. I now directed my attention to the delivery of the placenta of the first fetus, feeling convinced that there was not another to follow. By this time the uterus appeared to be perfectly inert. After trying to excite it by applying friction to the fundus and holding the cord tense, I placed her in the lithotomy position and passed my hand and arm up the vagina to the uterus, and withdrew from the uterine cavity a good-sized, healthy placenta. I worked under great disadvantages, owing to the large size of the woman, her great muscular strength, the fact of her lying on a feather bed and the bedstead being one of those low ones, the abomination of every obstetrician. After this the uterus contracted, no hemorrhage took place, and the patient made an excellent recovery and was delivered of a healthy boy on November 13, 1898, just thirteen months and eight days after the abortion.

By the fall which this patient met with, the placenta supplying the two smaller fetuses was affected; deprived of their necessary blood supply, they died, and they, together with the placenta, acted as a foreign body, which Nature cast off, and along with them the healthy fetus was also expelled. As its placenta was in a perfect condition and the uterus had become inert, its expulsion was delayed. The healthy fetus, being heavier than the others, gravitated to the lower pole of the uterine cavity and thus was delivered first. The abortion not being prolonged, and no germs having access to the uterine cavity, putrefaction did not take place, and, as all examinations and manual force had been conducted aseptically, no symptoms of sepsis developed.

The occurrence of the two placentæ for the three fetuses is, according to Lusk,<sup>1</sup> the usual state of affairs. In triplets it is common to find one child derived from an independent ovum and two from a single ovum. These were all males.

201 BROCK STREET.

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<sup>1</sup> Lusk: "Science and Art of Midwifery," 1893.

TRANSACTIONS OF THE SECTION ON  
GYNECOLOGY OF THE COLLEGE OF  
PHYSICIANS OF PHILADELPHIA.

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*Stated Meeting, January 19, 1899.*

DR. JOHN C. DA COSTA *in the Chair.*

DR. J. M. BALDY read a paper entitled

HYSTERECTOMY FOLLOWING DOUBLE OVARIOTOMY FOR  
MALIGNANT ADENOMA.<sup>1</sup>

DR. CHARLES P. NOBLE.—Dr. Baldy's paper, of course, is on the general subject of the wisdom of removing the uterus together with the appendages as a primary operation, and the special argument is, if this is not done, that at some subsequent period the uterus may become the seat of cancer. Speaking as to the general question, Dr. Baldy may remember that when this proposition was first broached it did not appeal to me—that is, it seemed to me unnecessarily complicating the operation to do hysterectomy subsequent to the salpingo-oöphorectomy—and the reason it did not appeal to me was because my experience had shown that the arguments in favor of the method were not altogether sound; that is, my experience had been that there were very few women in whom, when the uterus had been left, it proved to be the source of bad symptoms afterward; but as we did hysterectomy more and more and found it a simple operation, it has been my custom to remove the uterus whenever I have taken out both appendages for inflammatory conditions. If we do not remove the uterus after removing the appendages we certainly leave more or less (and usually more than less) of the posterior surface of the broad ligament and Douglas' pouch raw, where the adhesions have been broken up, and the posterior wall of the uterus is in a condition favorable for the formation of intestinal adhesions. On the other hand, if we take out the uterus the broad ligaments melt down and we leave a comparatively healthy pelvis and lessen the chances of intestinal adhesions. Hemorrhage is also better controlled. The position which Dr. Baldy took to-night is sound, but if we were to accept that as a very strong reason for doing hysterectomy we would have to abandon the method we both use of amputating the uterus at the internal os, and resort instead to panhysterectomy.

DR. BALDY.—In reply to Dr. Noble's remarks I would say that I present my suggestions as one phase of the subject, without having dealt with the other classifications for which the operation may be done, some of the reasons for which are

<sup>1</sup> See original article, p. 342.

well advanced by Dr. Noble. It goes without saying that the uterus is an absolutely worthless organ in a woman's body where the appendages have been removed. If even one piece of the ovary could be left it would be another question.

DR. BARTON C. HIRST read a paper on

A METHOD OF PREPARING CATGUT.<sup>1</sup>

DR. JOHN B. SHOBER.—I have been very much interested in Dr. Hirst's work, and have profited by his experiments in the Howard Hospital, where he has been using this method of preparing catgut, and I wish here to congratulate him upon the success of his work in this direction. The catgut is certainly the best that I have ever used. It is strong, pliable, very easily handled, and it lasts the length of time which is claimed for it. Dr. Hirst did not mention a fact which accounts for the success obtained—namely, that the metal cylinder in which the gut is boiled is hermetically sealed and prevents the steam from gaining access to the fluid in which the catgut is placed. I think that in the first experiments glass screw-cap cylinders were used, and it was found that the gut broke easily. This was due to the steam finding its way to the catgut during the process of boiling under pressure.

DR. NOBLE.—Very much that Dr. Hirst said, of course, we all agree with, but my experience has been that some things he said are perhaps a matter of individual experience. I have been using cumol catgut for four years, and I would say that it is perfectly satisfactory and that it is just as easy to prepare as when done by the method which Dr. Hirst has mentioned, and is not handled nearly as much. In fact, after the sterilizing it is not handled at all except with the sterilized forceps. So, from the standpoint of possible contamination, it would be even less liable to contamination than by the method which he has outlined. The cumol method gives a perfectly aseptic gut, the temperature in which it is boiled, about 350° F., being destructive of all germs; so, from the point of practical experience with it, I can say that having used cumol for four years I never saw it cause suppuration.

As to the use of suture material in various parts of the body, I have used both cumol catgut and chromicized catgut, and I have never seen chromicized catgut suppurate and have never had to take out a single catgut suture. So that the question of being troubled with suppuration seems to me purely a question of the way we deal with the cases.

As to the various methods of closing the abdominal wound, I have talked about that subject a good many times, and I may say that about a year ago—not because I had had any bad results with buried permanent sutures, but because it seemed that the pressure from a buried permanent suture would weaken the cicatrix by pressure atrophy—I thought I would for a time use chromicized catgut, which I have done

<sup>1</sup> See original article, p. 340.

for the last year; and I am sorry to report that whereas in six years I had but two hernias, in the past year I have had two hernias in cases that didn't suppurate. However, one woman was anemic, and the other one resumed her household duties early and has worked very hard since the operation, consequently the result may pertain to the woman rather than to the catgut.

DR. J. M. BALDY.—It is always a matter of surprise to me that so many different methods are quoted by so many good men. One explanation is, I think, that they are all satisfactory and it is a matter of individual preference and individual ease of preparation—that is, what one is in the habit of doing is the easiest and best. I never use any suture material in the abdomen excepting catgut, and I have yet to see the first piece of catgut suppurate during six years' use. The whole truth is that all the methods are good and accomplish the same results, and where they do not it is the fault of the man who places the catgut. It is like the old method of cleansing the hands by soap and water and bichloride of mercury—you can scrape the hands and cultivate bacteria. Nevertheless, in spite of this, this method of cleansing is eminently satisfactory and I always use it. If bacteria are there they are certainly harmless and I care not for them. I am becoming more and more disinclined to pay attention to the laboratory dictum when practical results are practically perfect. There is certainly something wrong with the laboratory workers.

DR. JOHN B. DEEVER.—I must confess that I agree with Dr. Baldy to a great extent. I am pleased with the report of Dr. Hirst. The very fact that he has used it with the success he has would lead me to use it without hesitation. The gut I use is prepared in the German Hospital by dry sterilization. We use the German catgut. I am convinced that the success of the gut is dependent largely upon general cleanliness. I use silk almost entirely in the abdominal cavity. I hesitate to tie omentum, strong adhesions, etc., with catgut, particularly in advanced life, on account of the atheromatous change in the vessels. I have seen cases of hemorrhage consequent upon suppuration from this atheromatous change.

As to the question of the bacteriological side of it, I differ relative to that. It is my practice, more for the purpose of keeping the nurses and attendants clean, to have a bacteriological examination made daily. I have my hands examined before I operate, and, with one exception, the bacteriologist has failed to grow cultures. What the form of bacterium is I do not know, but I am sure it is not a pyogenic organism.

As to the question of buried silver wire, I agree with Dr. Hirst. Nevertheless it is quite a good deal as Dr. Baldy also said: you acquire certain practices and are apt to adhere to them. In speaking of buried sutures, I would like to ask the gentlemen if they have noticed any difference, so far as subsequent condition is concerned, between suture of the inguinal canal and of the linea alba.



DR. NOBLE.—I have done 125 Alexander and hernia operations in the inguinal canal, and never had one suppurate. In one case which I started and an assistant finished, the skin opened up, but it did not suppurate down to the inguinal canal.

DR. H. D. BEYEA.—The catgut which we use at the Gynecean Hospital is prepared by putting it first in ether, then in a bichloride solution of 1 : 5000, next into juniper oil for seven or eight days, then it is put again into the bichloride and afterward into alcohol. With Dr. Baldy and Dr. Shober I have used this catgut in quite a large number of cases and have never seen it suppurate. We are using the same catgut at the University Hospital and have had no suppurations there.

DR. JOHN C. DA COSTA —Most of the discussion has been with reference to the sterilization of catgut by the hospital apparatus. I would like to hear some suggestion as to sterilization of catgut to be done by a physician with the ordinary home appliances. The high temperature for Dr. Hirst's preparation, and that required for the cumol catgut, can only be had in a hospital or in a special apparatus. There are a good many able surgeons who have not these things and cannot afford to purchase them. A method by which I have gotten good results is to first soak the catgut for twenty-four hours in a 1 : 1000 bichloride solution ; this loosens up the gut and enables the ether or benzine to dissolve the fat more readily. It is then put into benzine or ether until the fat is dissolved out, and then put and kept in a 1 : 4000 solution made of one part corrosive sublimate in 1000 of distilled water and 3000 of alcohol.

Lately I have used a catgut prepared by a bichloride of palladium solution. Experiments have been made with this bichloride, the strength of which was 1 to 20,000 or 30,000, and it was found to destroy all germs. With that catgut I ran a series of cases, some three years ago, of over thirty celiotomies without any trouble.

DR. HIRST.—I have little to add, except that my past experience with other catguts has convinced me of the superiority of catgut prepared as I have suggested.

Dr. Noble's statement that cumol catgut is handled less than mine is inaccurate. It is not handled, after its sterilization in alcohol, until it is used in the operation. It is my experience that, in addition to being handled, the preparation of the cumol catgut has the disadvantage of being exceedingly troublesome. Chromicized catgut will last a long time in the tissues, usually much too long, and is not to be relied upon under certain circumstances.

Dr. Baldy has spoken in favor of catgut prepared by immersion in juniper oil and boiling in alcohol without pressure. Because he has gone six years without an accident with it, is no guarantee that he may not have a dozen cases of infection and suppuration from it next week. There were a number of infections and several deaths in the Johns Hopkins Hospital in a single week which they attributed to their catgut. Dr.

Baldy may get a similar lot of infected catgut to-morrow which his process will not sterilize. If so, he will feel very differently on the subject. The juniper-oil gut boiled in alcohol without pressure is not necessarily sterile.

Some of the statements in regard to suppuration of wounds strike me as a little ill-considered. I cannot believe that the gentlemen who have taken part in the discussion mean to say they have never had suppurating abdominal wounds. They surely have seen abdominal wounds suppurate occasionally, and it is not easy to say to what that suppuration was due, whether it came from the catgut or from some other cause. It might easily have depended on faulty methods of sterilizing the catgut. This is indisputably one source of infection, so that we cannot be too careful in securing absolute sterilization of our catgut. Because we have been fairly well satisfied with older methods is no reason why we should not use a method shown to be more certain in its bacteriological results.

A paper by DR. E. P. DAVIS, entitled

TWO CASES OF OBLIQUELY CONTRACTED PELVIS WITH ABNORMAL MECHANISM OF LABOR,<sup>1</sup>

was read by title.

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## TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of November 4, 1898.*

*The President, T. C. SMITH, M.D., in the Chair.*

DR. I. S. STONE presented a specimen and gave the history of a case of

### TUBAL HEMORRHAGE

which appeared to have undergone encystment. The specimen when removed was about the size of a small orange, was oval in shape, and appeared to be a sac filled with blood clot. This specimen was attached posterior to the uterus and right broad ligament. The fimbria of the tube was attached to the border of an opening in the sac, giving the specimen the appearance of a tubo-ovarian cyst. The sac was not composed of ovarian tissue, because the corresponding ovary was quite normal. The patient, a woman 27 years of age, had been suffering for several months from pain in the region of the right ovary, which led her to consult the reporter, when the diagnosis of tubal or ovarian disease was made. The contents of the sac appeared to be rather well-organized blood clot, and at first examination the reporter thought it a case of tubal pregnancy. It may have been a tubal abortion, but we know that no pla-

<sup>1</sup> See original article, p. 346.

centa was found, and hence there is no proof that this is other than merely an encysted blood clot. Just here we claim that a fetus can grow in such a sac and that such cases are called broad-ligament extrauterine pregnancies. The patient recovered without incident.

DR. STONE also reported a case of

SEPSIS FOLLOWING SUSPENSIO UTERI, CURETTEMENT, AND  
TRACHELORRHAPHY.

The patient was a married woman, a multipara, who was sent to the hospital for the above operations and who presented no septic symptoms when the operations were performed. About three days after the date of operation severe sepsis occurred, which proved rapidly fatal in nine days. Due care was exercised in the preparation of the patient, and all materials and instruments used were supposed to be sterile. As the postmortem examination clearly showed the sepsis to have extended from the uterus, the cause of death could in no way be attributed to the peritoneal opening. Operations on other patients previous to, and immediately succeeding, this one, and performed by the same persons, and using the same instruments and materials (sutures, etc.), were followed by no untoward results in any particular. Hence we find it difficult to explain how septic infection occurred. The patient presented no symptoms of peritonitis, nor was there bowel obstruction or tympanites, vomiting, etc. At the autopsy, in addition to septic metritis, the spleen, lungs, and pleura were large, edematous, and easily broken. The lungs and liver were both congested, and the pleural cavities contained a considerable amount of fluid. The urine before death contained blood and albumin, and the kidneys were greatly swollen and congested. Just when the patient was infected we do not know, but after infection began she presented all the characteristic symptoms of severe systemic intoxication, such as stupor, etc., without pain or symptoms of peritoneal infection. The case is mentioned to show what may occur with our best care and in spite of all known preventives.

DR. H. L. E. JOHNSON said the specimen of the blood cyst was a fac-simile of one he had seen at the Columbia Hospital post mortem, the patient having died of septicemia. The specimen was destroyed by mistake and a diagnosis not made. A diagnosis of abscess of the liver had been made, but the fluctuation was found to be a displaced gall bladder.

DR. J. WESLEY BOVÉE asked the exact location of the specimen.

DR. STONE answered: At the extreme end of the tube, attached to the fimbriæ.

DR. BOVÉE (continuing) said that it looked like tubal abortion. It appeared as though it had been forced out of the tube and gone on developing. The matter of hemorrhage from the tube was not much studied until extrauterine fetation engaged

the minds of the profession. We can have hemorrhage from the tube, and it will become encysted. The Germans talk of tubal menstruation. Kehrer says the ligatures should be placed near the fimbriated extremity in tying the tube to prevent conception, so the menstrual blood will not flow into the abdomen. The infected peritoneum in Dr. Stone's case was probably from the catgut and was not enough to cause the general infection, which may have come from the uterus through the broad ligaments. We should not tell patients that any operation is not dangerous, as untoward results will sometimes happen.

DR. JOHN VAN RENSSELAER spoke of a case of septic poisoning that had died on the fourteenth day from lockjaw.

DR. H. L. E. JOHNSON spoke of a case that died after a perineorrhaphy. He had done a trachelorrhaphy, and afterward she became pregnant and was delivered, and another surgeon did the perineum operation.

DR. BALLOCH asked from whence did the infection come. Every precaution seems to have been taken; could not a nurse have introduced the poison on a douche nozzle or otherwise? Would not a sepsis begun at the time of the operation develop more rapidly?

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*Meeting of November 18, 1898.*

*The President, T. C. SMITH, M.D., in the Chair.*

DR. I. S. STONE showed a slide of the blood cyst exhibited at the last meeting, showing an organization of a sac wall.

DR. H. L. E. JOHNSON showed a small polyp taken from the female urethra. It was situated about a fourth of an inch within the meatus, unlike the caruncle.

DR. G. WYTHE COOK read the paper of the evening, entitled

SIMULATED PERITONITIS IN AN HYSTERICAL WOMAN.<sup>1</sup>

DR. JOHN VAN RENSSELAER opened the discussion. This was a remarkable case. His diagnosis when he first saw her was not hysteria, for she had all the signs of peritonitis, as abdominal tenderness, though the expression of the face and the character of the pulse and the temperature made him hesitate to operate. The lower abdomen was soft and the upper hard. The next morning he was a little more doubtful, and then noticed the condition of the leg and foot.

DR. J. WESLEY BOVÉE said he often found the abdomen distended and symptoms like Dr. Cook's case after abdominal section, which disappear after the bowels are well moved. Some nurses understand this and know when the gas has been removed and the bowels opened the nervous symptoms will disappear.

DR. W. P. CARR said these nervous phenomena were not confined to abdominal operations. He had seen the same symptoms after herniotomy and amputation of limbs. We may have a peritonitis not septic, from chemical poisoning or

<sup>1</sup>See original article, p. 350.



ptomaines from germs passing through the intestinal canal. Some may have been absorbed in Dr. Cook's case. In nervous women with a tendency to hysteria, symptoms of peritonitis would be exaggerated, and Dr. Carr asked if the gastric symptoms might not have been from hysteria. Many nervous women have a poor digestion.

Dr. I. S. STONE said he was greatly interested in Dr. Cook's case, and it would be better if we all reported more like it. He cited a case that had come under his observation, twenty years ago, of a patient suffering with what appeared to be ulcer of the stomach, who entirely recovered after eating of some very indigestible dish which had been forbidden her. Since opening more abdomens he had seen more ulcerations and perforations and their results. Five years ago he opened an abdomen with all the signs of extrauterine pregnancy; blood spurted out on all sides, but no lesion was found. To-day he opened an abdomen and about twenty ounces of fluid blood gushed out; there was a cancer of the liver beginning, and deposits in the mesentery; the gall bladder contained a calculus. The blood could not have come from the cancerous organs or by capillary oozing; may it not have come from some ulcer? He thought we should consider ulcer of the stomach or intestine.

Dr. H. L. E. JOHNSON said that in 1884 he had seen a case of hysterical knee with Dr. Murphy. Several distinguished men from other cities saw the case and advised operation, not recognizing the true condition. Dr. Johnson cited another case at Columbia Hospital. Dr. Cuthbert had reported a mitral murmur; he failed to find it, though the next day it was plainly apparent and reappeared at intervals.

Dr. W. S. BOWEN said there was another side in the diagnosis of organic or hysterical diseases, viz., not to call a real disease hysteria, and he cited the case of a patient who at times complained of a peculiar feeling in the right side of the head. This was thought by her physicians who had attended her previously, and by her family, to be nervous. Suddenly she became paralyzed, and died in a half-hour, after one of these peculiar feelings.

Dr. G. WYTHE COOK said that he had made a diagnosis of gastric ulcer, which he believed was correct, and it was strongly fixed in his mind, so that when such striking symptoms of peritonitis were present he felt sure that perforation had taken place. He had no doubt that if the patient had been in a hospital, where all the conveniences of operating were present, the abdomen would have been opened with a view of closing the supposed perforation, which procedure would have been justifiable with the clinical picture present in the case. Certainly, if a peritonitis existed as a result of gastric perforation, purgatives would not have been indicated. His opinion now was that no peritonitis was present in the case and that it was entirely simulated. It had been reported to him that she had had several fainting spells, but he had attributed them to weakness. The first indication he had seen of hysteria was the rigidity of the legs and feet as described.

# TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

*Meeting of December 13, 1898.*

*The President, J. WHITRIDGE WILLIAMS, in the Chair.*

## POST-OPERATIVE INSANITY.<sup>1</sup>

By DR. GEORGE H. ROHÉ.

## POST-OPERATIVE INSANITIES AND UNDETECTED TENDENCIES TO MENTAL DISEASE.<sup>2</sup>

By DR. HENRY M. HURD.

DR. E. N. BRUSH.—Dr. Rohé and Dr. Hurd have both given you the impression that there are doubts in the minds of psychiatrists as to whether there is a true post-operative insanity, clinically. I agree most thoroughly with what they have said. There are no symptoms in a given case that would lead any one to say of the patient, if unfamiliar with the history, that this is a case of post-operative insanity. Dr. Rohé has clearly laid before us what is commonly recognized as the clinical manifestations of psychoses following operations and psychoses following infections without operation. I agree with him that the majority of insanities following operations are due to some form of infection. That there are some cases, however, that are due to shock I think is true, and that there are some cases due to the effect of operation *per se* I think we can also conjecture as being true.

We can easily picture in our minds a case of the type Dr. Hurd has described, who, at the end of many importunities or as a last resort, has had an operation performed. The patient enters upon the operation with more or less dread of it and with the possibility of its being a failure, and the relief from the strain following the operation may sometimes, as we are told that joy occasionally kills, upset a mind already predisposed to mental disturbance.

I have seen enough of surgery to know that post-operative delirium, such as I used to see, has practically gone out of existence, but I think I have seen within the last ten years as many cases of insanity following operations as I saw in the previous ten-year period. Whether this is because the majority of cases which I have seen within the last ten years were drawn from two populous cities where there are many surgeons, gynecological and otherwise, I am unable to say.

I do not know that I can agree fully with what Dr. Rohé

<sup>1</sup> See original article, p. 324.

<sup>2</sup> See original article, p. 331.

says, if I understand him correctly that the removal of the ovaries is not a known cause of insanity. I think I have seen a few such cases.

I am glad that Dr. Rohé emphasized in his paper the fact that there is nothing new or unusual in the insanities following operations—that they are not a type. Recently the journals have contained several papers and discussions upon post-operative insanity, and especially is this so of the foreign journals. The conclusions they have arrived at are the same as those announced by Dr. Rohé and Dr. Hurd. For example, the *Annales Médico-Psychologiques* for September-October, 1898, contains a report of a discussion of the subject at the recent Congress of Alienists and Neurologists of France, as well as a paper by Drs. Picque and Braind before the Paris Society of Surgery in March last.

At the Congress of Alienists the conclusions reached by Dr. Rayneau, who opened the discussion, were that there did not exist a psychosis which might be called post-operative insanity; that, with the exception of certain operations upon the head and thyroidectomy, there were no operative procedures which could be said to be solely productive of mental troubles, and that the main rôle in the production of post-operative mental disturbances was played by a predisposition, acquired or hereditary; that various causes were efficient in producing this accident, and that those which were apparently most manifest were intoxications, either originating internally or externally—alcoholism, infection, autointoxication; and, second, mental shock or preoccupation which accompanied the operation. The other causes, which were of secondary importance, were the anesthetic, the anemic condition and the cachexia of the subject, the nature of the infection, and the organs involved. It did not appear, in the experience of this speaker, that gynecological operations were more frequently followed than other operations by post-operative mental disturbance. Dr. Régis stated that in his observation the post-operative psychoses were practically divisible into two classes, the one of cases following immediately upon the operation, and the other cause appearing later. The immediate mental excitement is produced by intoxication, the anesthetic, or shock; the secondary delirium was attributable to septicemia and autointoxication. There were certain other cases which might be attributable to asthenia due to suppuration, to prolonged confinement in bed, or depending upon disturbance of the organs of internal secretion. This speaker recommended surgeons to exercise great care in excluding, as far as possible, from operative interference any case which showed predisposition to mental or nervous disturbance.

It is impossible to give more than passing reference to this interesting discussion, which will repay the careful study of those interested in the subject, as will also the paper before the Society of Surgery to which I have referred.

DR. BROWNE.—I have listened with a great deal of pleasure

to these papers and to Dr. Brush's remarks. I agree with the speakers that many of these cases are due to some septic trouble, but I also believe that Dr. Hurd is right and that most of them have some tendency to insanity, or at least are in a neurotic condition previous to the operation. That has been the condition in the several cases I have seen, and I think the surgeon should be extremely careful in dealing with neurotic patients, if he would avoid trouble.

DR. MOSELEY.—A case that has come under my observation within a few weeks, in which post-operative insanity followed an operation, may be worth relating. The girl, who was more or less run down physically, presented no symptoms that would call attention to her mental condition, and I could not get at a history of heredity. She had no fear of the operation, took her anesthetic perfectly well, and there was no shock from the operation. During the first seven or eight days she had no rise of temperature. Convalescence went on perfectly normally, and the first indication we had of an abnormal condition was that in the middle of the night she got out of bed, went into the passage-way, and was found looking out of the window. There was no harm, so far as the results of the operation were concerned, from this indiscretion, but she soon showed other signs of mental derangement which took on the form that Dr. Rohé has described—that is, the chatty, talkative condition which ended in acute mania, when she repeatedly tore her clothes. She was sent down to Bayview and there improved very much.

In her case the ovaries were not disturbed, but were purposely left in to avoid the mental disturbance of the menopause. I believe a case like this is one that if an operation had not brought on the insanity any mental shock might have produced the same thing. It seems to me that lots of these cases that are attributed to post-operative influences are simply cases of insanity, which are precipitated perhaps by the operation, as they might be by any other serious physical, nervous, or mental shock.

Dr. Hurd spoke a word of warning in regard to operating on cases where the symptoms may be nervous in character. I think it was a wise one, but at the same time I have in my experience seen cases very much benefited by operative interference. A girl suffering with amenorrhea associated with pain and nervous disturbances came under my observation. Her father and grandfather were both insane. While the flow was kept up by treatment her nervous symptoms were lessened, but if it failed the mental symptoms were of marked character and the condition was on the border line of insanity. Fortunately for the girl she developed a cyst of the left ovary, and in operating upon it I also removed the other ovary—not that it was cystic, but because it was small, and in consideration of her previous history. That was six years ago, and I have kept her under observation since. She has absolutely changed in her nervous condition and has within the last few months



married, the husband understanding fully that she had lost both ovaries.

Another case is one of those I intended to report to-night, a young lady from New York State, who inherits, I believe, no tendency to true insanity. but an extremely nervous hysterical condition from the mother. For the last few years she has suffered intense pain at the menstrual period. This patient was referred to me by an alienist of New York City, and the question was thoroughly canvassed before any operative procedure was entered upon. The pain was so extreme that two half-grain injections of morphia were not enough to quiet the physical suffering, and the nervous condition was rapidly becoming worse. Removal of her tubes and ovaries was performed, and at the next menstrual period there was no flow. There was some return of the abnormal mental condition, but less marked than before the operation. When the time for the second and third periods came around the symptoms were still less marked, and for the last six months or more she has been absolutely free from pain and her physical and mental troubles have been entirely relieved.

I do not believe all nervous symptoms in women are due to abnormal conditions in the pelvic organs, but I do think that abnormal conditions in the pelvic organs are important factors in the production of nervous symptoms.

DR. ROHÉ.—Referring to the question asked by Dr. Brush, there is very little doubt in the minds of alienists that there is a form of mental disturbance which comes on at times during the natural menopause, and it is not surprising that it should occur at the menopause produced by operation. I have endeavored to separate those cases from those which in the point of time can be called post-operative insanities. I do not think an insanity that comes on six or eight months after the removal of the uterus should be called post-operative insanity. They are cases of climacteric insanity.

I feel very much gratified that there has been such a general agreement upon the question that septic infection is largely the cause of insanities or mental disturbances that occur after operations. In my paper I did not deny the influence of shock, anesthetic, loss of blood, etc., but I must insist that in point of time, in point of development, with the coincident circumstances and other signs of septic infection, we must assume that the majority of cases of post-operative insanity, as we understand it, are due to some toxemic condition.

DR. HURD.—I have been very much interested in the cases related by Dr. Moseley. The first one certainly showed that an operation was unquestionably necessary and as unquestionably produced a cure. In the second it was shown that there was a condition that needed to be relieved, but I should like to know the after-history of that patient—whether there is this complete relief, or whether there are symptoms developing that will make the last state of the patient little if any better than the first.

W. W. RUSSELL,  
*Secretary.*

## TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

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*Annual Meeting, February 1, 1899.*

*The President, C. J. CULLINGWORTH, M.D., in the Chair.*

### PRESIDENT'S ADDRESS.

The reports of the Treasurer, Hon. Librarian, and Chairman of the Board for the Examination of Midwives having been read, received, and adopted, the retiring President, DR. CULLINGWORTH, delivered his annual address. He said that although the work of the Secretaries in that Society was by no means a sinecure, and was indeed heavier and more exacting than any one not intimately acquainted with the official nature of the Society would suppose, there was one duty from which they were exonerated, namely, the preparation of an annual report. It had always been usual in that Society for the President, at the close of each of his years of office, to give an account of the condition of the Society and of the work done during the year. Following this long-established custom, he had to begin by deploring a further slight falling off in the number of Fellows.

The total number of Fellows on the roll on January 1, 1898, was 711, comprising 11 Honorary and Corresponding Fellows and 700 ordinary Fellows. During the year the Society had lost 12 Fellows by death (including a death that occurred in 1897 and had been accidentally overlooked) and 30 by resignation. Twenty-two new Fellows had been elected. Hence, the number on the roll had been reduced by 19. The present total (January 1, 1899) was 692, of which number 10 were Honorary and Corresponding Fellows and 682 ordinary Fellows. This diminution in numbers ought not to be, and would not be if only each one would bestir himself in the way of beating up recruits. During the past year the Council, acting in conjunction with the Board for the Examination of Midwives, had drawn up a code of rules and regulations to be observed by midwives holding the Society's certificate. These rules had now been printed and circulated, and a copy would be supplied to every Fellow of the Society in the form of an appendix to the forthcoming volume of Transactions. He (the President) regarded the preparation and issue of these long-wanted rules as quite the most important event that had happened in the Society during his term of office.

In the matter of its examination for midwives, the Society continued to suffer from a certain amount of professional

opprobrium, which, though entirely undeserved, was probably in some degree responsible for the decrease in their numbers. He wished once more to remind their professional brethren that the Society undertook the work from a sense of public duty and merely as a temporary expedient, after having tried in vain to induce the government to move in the matter; he assured them that it would be only too glad to relinquish it whenever the state could be prevailed upon to take upon itself functions that properly belonged to it and that it alone could adequately fulfil.

The President proceeded to review the scientific work of the Society during the past year, giving a brief abstract of each of the papers read, fifteen in number (ten obstetrical and five gynecological), and classifying the specimens shown in groups, according to the particular subject it was the intention of the exhibitor to illustrate. The names of the deceased Fellows were then announced, each announcement being followed by an obituary notice. The first and longest notice had reference to the late Dr. Charles West, an Honorary Fellow and past President of the Society, and the other names mentioned included those of Dr. Karl Liebman, of Trieste; Dr. Leonard Remfry, brigade surgeon; Joseph Johnston; Mr. E. Arnold Praeger, of California; Deputy Surgeon-General John R. Miller Lewis, M.D.; Dr. George Roper; Dr. John Wallace, of Liverpool; Dr. W. F. Cleveland; Dr. C. E. Fitzgerald, of Folkestone; Mr. Alfred Kebbell, of Flexton, York; and Prof. A. A. Kanthack, of Cambridge.

The address concluded with a word of farewell and of thanks to the Fellows, and especially to the President's colleagues in office, for the help and support uniformly accorded to him in the conduct of the Society's business, both in the general meetings and in the council room. "In resigning this chair," said Dr. Cullingworth, "it is a satisfaction to me to know that its next occupant is to be one of whose contributions to scientific gynecology all British gynecologists are justly proud, and whose irrepressible but never unkindly humor may be relied upon to relieve the dulness of even your very driest debates. I congratulate *you* and I congratulate *him*. The best I can wish him is that his tenure of this high office may be as pleasant and peaceful as mine has been."

The following officers and members of Council were appointed for the year 1899:

*President*—Alban Doran, F.R.C.S.

*Vice-Presidents*—John W. Byers, M.A., M.D. (Belfast); William Radford Dakin, M.D.; William Duncan, M.D.; Jamieson Boyd Hurry, M.A., M.D. (Reading).

*Treasurer*—James Watt Black, M.D.

*Chairman of the Board for the Examination of Midwives*—Percy Boulton, M.D.

*Honorary Secretaries*—John Phillips, M.A., M.D.; Herbert R. Spencer, M.D.

*Honorary Librarian*—Amand Routh, M.D.

*Other Members of Council*—Augustus W. Addinsell, M.B., C.M.; John Ford Anderson, M.D.; A. H. Freeland Barbour, M.D. (Edinburgh); George Francis Blacker, M.D.; Robert Boxall, M.D.; Thomas Watts Eden, M.D.; Angus Fraser, M.D.; Arthur Edward Giles, M.D.; Thomas Crawford Hayes, M.D.; George Ernest Herman, M.B.; John Dysart McCaw, M.D.; Arthur Nicholson, M.B. (Brighton); Richard Pinhorn (Dover); William Loudon Reid, M.D. (Glasgow); Charles Hubert Roberts, M.D.; George H. Drummond Robinson, M.D.; William Japp Sinclair, M.D. (Manchester); Arthur Francis Stabb, M.B., B.C.

On the nomination of the Council, the following distinguished persons were unanimously elected to the Honorary Fellowship of the Society, viz.: Prof. Olshausen, of Berlin; Drs. Budin and Pinard, of Paris; Dr. A. E. Martin, of Berlin; Dr. H. Oldham, of Bournemouth (an original Fellow and past President of the Society); and Mr. Jonathan Hutchinson, of London.

Certain proposed alterations in the laws were then confirmed, and the meeting concluded with votes of thanks to the retiring President, Vice-Presidents, and members of Council.

A specimen of tubo-ovarian abscess had been shown by Dr. Cullingworth at the commencement of the meeting.

## BRIEF OF CURRENT LITERATURE.

### OBSTETRICS.

**Management of Labor.**—Milo B. Ward <sup>60</sup> says: The most trying problem in connection with our duties as obstetricians is the one which relates and has to do with one's own person. *To keep clean.* What a herculean task!—I may say an impossible thing to do. It is our duty to make every endeavor known to science to keep our hands free from septic micro-organisms. To do this we must, so far as possible, avoid contact with known virulent infection. If we are called upon to care for a woman suffering from puerperal septicemia, we should positively refuse to attend in confinement any other woman until sufficient time has elapsed to make certain that our hands are clean. This may require three or four days, and a week would be still better. One of the ways of keeping our hands contaminated is to wear the same gloves for weeks and perhaps months. What could be more septic than a glove which is worn till it cannot be kept on the hand, when all sorts of septic conditions have been under our treatment? A word to the wise is all-sufficient. It would not seem necessary to make mention of such a trifling thing as the nails of the accoucheur, but careful investigation would develop the fact that frequently we are found attending the parturient woman with finger nails which have not been properly trimmed. There is but one way



to prepare our nails, namely, cut them so close to the finger ends that there will be no possible chance for them to abrade the tender tissues or carry infection. Ward does not believe that much if any good is derived from the vaginal douche as commonly used. It has been quite well established that the vaginal mucous membrane does not contain septic germs, except in rare instances. However, granting that the vagina is septic, how much good can be expected to result from a small stream of medicated water forced into the vagina with an ordinary syringe? If we are to prepare the vagina for the ordeal by any douching, we should be as thorough as though we expected to perform a colpohysterectomy. We should, therefore, either thoroughly disinfect the vagina or leave it as we find it. Quite different are the conditions of the external genitalia. Here one should be very cautious. The pubes should be thoroughly scrubbed in every case. Not only should we carefully prepare the external organs, but we should use every endeavor to keep these parts from contact with sepsis. The preparation of the patient is no more important than it is to have the environments as ideal as circumstances will admit. It is not, then, the vagina but the external parts which should receive the most scrupulous preparation. After labor it is of paramount importance that every tear, however slight, should be immediately closed, in order to prevent absorption of sepsis and at the same time put the parts in their proper relation. It does not require any unusual skill to repair and make the vaginal outlet as good as before the injury, and it is our duty to do this for many reasons, not the least of these being the future functions of these important organs.

S. Marx<sup>63</sup> says: The highest duty of the accoucheur is not to deal alone with prophylaxis as to present states, including sepsis, lacerations, etc., but to place the woman in so perfect a condition and to make that condition so permanent a one that her health is as good after as before the accouchement. And what is the secret of this success? It is explained in one word—"asepsis." Naturally, bearing strongly upon the subject now advanced is the status of the vagina on the one hand, and the condition as to surgical cleanliness on the part of the attendants, paraphernalia, etc., on the other hand. From a vast amount of scientific research we must presuppose the larger number of "parturientes" to have a vaginal secretion, which possesses to a decided degree an inhibitory action which bears directly on pathogenic organisms—*i.e.*, streptococci, staphylococci, etc. A secretion which possesses such qualifications obtains in the normal vagina at all times. This secretion is acid to a marked degree, sticky, and gelatinous. Its inhibitory action depends upon the presence of lactic acid produced by Döderlein's bacillus. When we find such vaginal secretion present, which can be proved clinically by sight and touch, we have the vagina prepared sufficiently, without artificial preparation, to conduct labor scientifically; and under these conditions no antepartum

douches, scrubblings, etc., are allowable, for if such means are employed the possibility of producing an infection or the destroying of Nature's protective means are ever present. The condition is different when, from bacteriological experience, this inhibition does not obtain. Under these conditions we have a vaginal secretion which is alkaline in reaction, profuse in amount, malodorous, and purulent. Here we have to deal with what in most cases is a gonorrheal infection. The indication is to treat before and to anticipate the labor by prophylactic douches, profusely and repeatedly given; and when labor sets in, surgical scrubbing, even as is done before a major vaginal operation, is distinctly called for. The use of green soap, alcohol, and bichloride is the régime. Approaching the accouchement of a healthy woman, what subjective preparations are to be taken? No vaginal douches are allowed before, during, or after labor. The external genitalia are thoroughly scrubbed with soap and water, and this very briskly, to insure mechanical cleanliness; this is followed by washings with dilute alcohol, and again rinsed with a bichloride solution 1:2000. The strictest attention must be paid to the hands of the examiner. There should be thorough surgical scrubbing, mechanical and chemical. As to the manner of examining the patient, the school of obstetrics is to-day divided into two classes: those that believe in conducting a case entirely by external methods, and again those who would have us employ both external and internal examinations.

A practitioner who does not know how to render his hands clean has no moral right to practise midwifery; and, on the other hand, a physician who *can* trust his own asepsis can introduce his hands into the vagina as often as is necessary. It should also be an invariable rule to make a diagnosis of the presenting part, and if the case is at all uncertain there should be no hesitancy in introducing the clean hand into the uterus for purposes of exploration. It must be remembered that the presence of a head as the part in contact with the examining finger does not mean that everything is all right.

Labors are much shortened and more rapid when the patient is placed on that side corresponding to the position of the presenting part, and the rationale of such postural treatment is the overcoming of the ever-present uterine obliquity, thus favoring, and to a marked degree influencing, either the flexion or extension, depending on the presence of a face or vertex presentation. Even when the head begins to distend the perineum the side position is favored. In our ordinary soft beds the buttocks sink so deeply in the dorsal posture of the patient that more often than not the perineum is with difficulty seen, and thus its management is materially interfered with, while with the woman on the side the entire perineum can be seen and manipulated with ease. Further, in the side position the occiput of its own weight is thrown forward and liberates itself more naturally and more readily than when the patient is placed on the back. When the head reaches the pelvic floor

drop doses of chloroform are gradually given and increased, but only during the pains, so that when the head has cleared the perineum the patient is narcotized to the obstetric degree.

The old term, supporting the perineum, is a misnomer and a misleading term, since the greatest success in the preservation of the perineum is attended by not touching the perineum at all, but by managing the head in such a fashion as to produce continuous flexion of the head to the point of superflexion, if necessary forcibly liberating the occiput and clearing it from beneath the symphysis, and in this fashion engaging the nape of the neck, or, properly speaking, the suboccipital point, underneath the symphysis, before the attempt is made to extend the head. We thus liberate a small diameter of three inches and three-quarters, the suboccipito-bregmatic, for one of five inches, the occipito-frontal. Those who never have had any perineal lacerations can be thrown into three classes: 1. Those who have never had a labor case. 2. Those who never look for them. 3. Those who hate the truth. Where there is danger of a laceration, a large experience has taught that bilateral episiotomy will not prevent its occurrence, and, on the contrary, the advancing head will tear these two superficial incisions further and produce a large, irregular tear on either side. Dilate by cutting the vulvar orifice completely by a deep vulvo-vaginal incision, nothing more or less than a deep unilateral episiotomy. Thus we get a clean surgical wound readily sewed up, in place of two irregular, ragged tears as produced by the superficial incisions. When the perineum already begins to tear, or acts like wet blotting paper, the quicker the head is extracted the smaller the tear.

**Puerperal Infection.**—According to Olshausen<sup>51</sup> puerperal infection due to gonococci, tetanus bacilli, etc., should not be termed puerperal fever, but this term should be restricted to the septic processes produced by streptococci and staphylococci. [This may be good in theory, but it is of little practical value, for careful investigations by numerous authors have conclusively proved that in the majority of cases of puerperal sepsis we have to deal with a mixed infection. Thus, in well-pronounced cases of puerperal infection gonococci and staphylococci were present, while in others, which clinically could not be differentiated, the bacillus coli was found to be the cause of the disease. Under what heading should such cases be classed? In our opinion the term puerperal fever is obsolete, and the quicker it is dispensed with the better. The term puerperal infection is much more suitable; it designates all the infections of the puerperal state. If we adopt Olshausen's classifications cultures will have to be made in every case to arrive at a conclusive diagnosis; and while this may be practicable in a few institutions, it is absolutely impracticable in general practice.]

C. Prévost<sup>5</sup> concludes that puerperal septicemia is an infectious disease caused by the absorption of pathogenic germs, usually the streptococcus pyogenes, rendered possible owing to a lesion produced along the genital tract by the obstetrical traumatism.

In almost every case the germs come from without and are brought into the tract during labor. Whatever may be the form and intensity of further clinical manifestations during puerperium, the disease is always localized at the beginning and liable to be reached and checked by surgical means at our disposal. The first symptoms generally appear within thirty-six hours after labor and are characterized by elevation of temperature, frequency of pulse, cephalalgia, insomnia, and more or less abdominal tenderness. The preventive treatment consists in having the uterus thoroughly empty after delivery and in surrounding ourselves before, during, and after labor with the most scrupulous antiseptic precautions, endeavoring also to detect and immediately treat the least solution of continuity along the vaginal tract. The curative treatment must be employed at the very onset of the symptoms, and consists in vaginal antiseptic douches, successively followed, should there be no improvement in the symptoms, by intrauterine irrigation and a single or repeated curettage of the uterus. Later on, if we have been called too late or if we have neglected to intervene opportunely, curetting and antiseptic cleaning of the uterine cavity may be tried, but the results are then doubtful. Infection has become totally systemic, general therapeutic measures must be resorted to, the prominent indication being to sustain the organism in its struggle against the effects of septic absorption; the treatment, which must be directed against the various complications arising then in the different organs, such as peritonitis, pelvic abscess, phlebitis, cellulitis, being usually the same as the treatment required by the surgical affections of these organs outside of puerperium.

**Removal of a Hydrocephalic Head.**—F. G. Renshaw<sup>3</sup> applied forceps to this head with the view of compressing it, but failed. He decapitated the fetus and delivered the body, and then performed Cesarean section and removed the head. He believes that Cesarean section is much safer than craniotomy, and that it is not followed by so many disagreeable resultants.

**Retained Fetus.**—T. C. Peters<sup>4</sup> reports a case in which the fetus was retained five years.

**Prolapse of the Cord.**—E. Ernooth<sup>5</sup> reports 90 cases of prolapse of the cord occurring in 18,287 deliveries at the Helsingfors Maternity Hospital, with a fetal mortality of 42, or nearly 47 per cent.

**Albuminuria during Pregnancy.**—Henry Kreutzmann<sup>6</sup> states that in a case of the above variety the mother was free from convulsions but the new-born infant had eclampsia. The convulsions occurred without any warning, in a healthy baby, were extended over a period of more than fourteen hours, and the baby recovered without any sequelæ. The mother was suffering from a true "nephritis of pregnancy" prior to and during delivery.

**Retention and Putrefaction of Fetus.**—Draghiesco and Cristeano<sup>7</sup> report a case of retention of a six-months fetus, with gradual putrefaction and expulsion of the placenta and



membranes, as well as of the fetal soft parts. Four and a half months after the death of the fetus it was removed by gradual dilatation of the cervix. The patient, who was profoundly cachectic, died within six hours. The uterine wall was found to be extremely degenerated and the seat of purulent infiltrations.

**Symphyseotomy and Cesarean Section.**—Abel<sup>60</sup> reports 25 cases of symphyseotomy—in 1 case the operation was performed twice on the same patient—and 53 cases of Cesarean section. The latter operation was performed twice on 11 women and three times on 4 women. Convalescence after symphyseotomy varies much; some patients recovered completely after five weeks, while others could not walk after ten months. Convalescence is in proportion to the size of the pelvis, slowest in cases of marked contraction. In all cases the symphysis remained somewhat movable, but this did not interfere with locomotion. More important for recovery is the rapid union of the soft parts. Lack of success is usually due to pain in the scar and shortening of the anterior vaginal wall, disturbing the functions of the bladder and causing retroflexion of the uterus. The disagreeable symptoms of Cesarean section were due to suppuration of the uterine sutures and the formation of adhesions between the uterus and the anterior abdominal wall. The latter are apt to cause disagreeable symptoms during menstruation and subsequent pregnancy. Fourteen cases in which symphyseotomy had been performed became again pregnant; none of these patients complained of any bad symptoms during gestation. In only one case was symphyseotomy again required; others were delivered without difficulty. Thus it appears that symphyseotomy changes the configuration of the pelvis and increases the diameter not only temporarily but lastingly.

J. Braithwaite<sup>6</sup> reports 2 Cesarean sections done for labor obstructed by ovarian tumors. In one case both mother and child survived, in the other the child died.

C. C. Weeks<sup>9</sup> reports a case of dystocia due to antepartum hour-glass contraction of the uterus. The fetus presented by the vertex posterior; all efforts to change the position failed. Forceps were applied, but no progress was made. Finally the patient's condition became so serious that craniotomy was resorted to, without success. Cesarean section was then performed and the child quickly removed. No cause for the contraction could be found.

E. R. C. Earle<sup>10</sup> reports the case of a negress who had a twin pregnancy complicated by a fibroid tumor of the uterus. As pains were strong and frequent and no progress was made, and as the woman was in very great pain, he decided to perform Cesarean section. He found a tumor 9 inches long, 7 inches from side to side, and  $5\frac{1}{2}$  inches antero-posteriorly. The children were removed alive and the uterus sewed up with the tumor in it. At the end of seven weeks both the mother and children were doing well.

**Menstruation and Ovulation in Monkeys and in the Human Female.**—Walter Heape<sup>9</sup> states although absolutely regular menstruation throughout the year is not definitely proved for all species of monkeys, still it is quite certain some of them menstruate during the non-breeding period; and this is a fact to be noted, for it would appear to be a connecting link between the lower mammals who come on “heat” only at breeding times, and the human female who is, generally speaking, capable of breeding at all times. This relationship is brought still closer by the facts that some women, of peoples who live very far north, do not regularly menstruate during the winter months, and that a special breeding season among human beings is not only suggested by the customs of widely separated peoples, but is actually observed by some of them. A review of the various modern views of menstruation in the human female leads to the opinion that it will be found that while the histological phenomena accompanying menstruation in the latter may differ somewhat in detail from those in monkeys, they are practically identical processes; further, menstruation and “heat” are very much more similar than has hitherto been recognized. With regard to the relation of ovulation to menstruation, if it is granted that menstruation in monkeys is the same process as menstruation in women, then it can definitely be stated that ovulation does not necessarily occur during each menstrual period.

**Obstructed Labor.**—W. G. Nash<sup>10</sup> describes a case of labor obstructed by a pelvic ovarian tumor. The tumor was in Douglas’ pouch and prevented the descent of the descending part. He aspirated the tumor and drew off four and a half ounces of clear fluid. This caused a marked decrease in the size of the tumor and allowed the fetus to be born. The child was dead.

**Hysterectomy for Obstructed Labor.**—Polk,<sup>12</sup> in reporting three successful cases of this nature, says: The Porro operation is presented to us as a necessary measure or as one of election. When before us as a measure of necessity, we are faced by dire complications, such as osteomalacia, a ruptured uterus, a septic uterus—such, for instance, as is met with either in consequence of infection from a dead child or in consequence of a too prolonged or unskilfully treated obstructed labor—uncontrollable hemorrhage either in the course of a Cæsarean section or in consequence of myomectomy, extensive fibroid disease of the uterus, especially if the tumors are located in the lower segment of the uterus and are large enough to encroach upon the line of delivery. In all of these conditions extirpation is the proper remedy, and no other operation should be considered. This is not the case, however, in the presence of mere contractions, such as undilatable cicatrices of the vagina or cervix, or deformities of the bones of the pelvis. Cæsarean section and symphyseotomy may here be presented as alternatives. Let us first make comparison with Cæsarean section. The sole factor favoring this operation is the avoidance of mutilation.

It is more dangerous than extirpation, because the operator—and the poorer he is the greater the risk—deals with a surface more fragile, more liable to sepsis; with an organ, in fact, within which conditions can readily arise that may nullify his best efforts toward the all-essential coaptation of the edges of the wound which he has inflicted. And as this nullification means leakage of a virulent poison into the peritoneal cavity, it generally means death. In all other respects the two operations stand upon an equality. The time consumed in operating and the amount of shock involved are practically the same. The question, then, is narrowed down to mutilation *versus* safety, and as such it should be presented, certainly to the friends of the patient, if not to the patient herself; and I am clearly of the opinion that the less skilful the operator the greater the preponderance of safety on the side of extirpation.

Turning next to a comparison with symphyseotomy, we realize that the contrast can apply only to those greater degrees of contraction to which symphyseotomy is adapted. When this operation can place the case within the domain of version or the forceps, comparison is out of the question; but when it can place the case only within the domain of embryotomy, a joint presentation of extirpation is imperative. I would cast my vote for extirpation, and with all the greater alacrity the poorer the operator in charge of the patient. It takes more skill properly and successfully to perform symphyseotomy, eviscerate and remove a child from such a pelvis, than it does properly and successfully to deliver a living child and extirpate from above such a pelvis. One has only to feel secure in his cleanliness to find simplicity and ease in the problem presented in the extirpation of a pregnant uterus at or near term from above a contracted pelvis.

Approaching the details of the operation, I will say at the outset that, after the delivery of the child, the more closely it is modelled upon the operation of suprapubic hysterectomy as now done for fibroids, the better. As between amputation below the cervix or through it, the latter is the easier and, here, the more preferable.

There are always present (especially in contracted pelves) certain conditions which give the operator joy. The elongation of the vagina places the uterus so well out of the pelvis that the point of amputation is easy of access; pregnancy has so enlarged the vessels that they, too, are reached readily; the peritoneum is so loosely attached all about the lower segment that it is easily separated; the ureters, though drawn upward, are proportionately less so than the cervix, so one need have no more concern about them here than in other suprapubic hysterectomies. But if one should be concerned, the "open order" which prevails about the uterus in the subperitoneal planes permits easy isolation of the already lifted-up uterine artery outside the ureters. I prefer to ligate these arteries as far out as convenient, so as to control as many of its vaginal branches as possible. However, some might prefer to cling more closely to

the method followed in removing fibroids, ligating these vessels close in at the utero-vaginal junction, securing others that may be severed as they appear. The uterus is emptied, of course, after it has been turned outside the abdominal cavity, and time is saved by having at hand a plentiful supply of warm, wet, sterilized towels, which can be crowded into the necessarily long abdominal wound, covering the intestines, enveloping the scar and sides of the uterus, even as far down as Douglas' pouch; with others filling the anterior pouch, covering and protecting the regions in front of the broad ligaments.

Time is saved by tearing asunder the uterus, first cutting an opening anteriorly, large enough to admit two or three fingers, choosing for the incision the median line, commencing at the fundus. The tissue gives way readily, and when the rent reaches the lowest segment of the uterus one has secured ample space for the removal of the child. As soon as this is accomplished any troublesome bleeding is controlled at once by an elastic ligature thrown about the uterus below the rent. The removal of this organ is then undertaken, as already suggested. In case haste is essential, one may be tempted to fix the utero-vaginal segment of the uterus in the lower angle of the abdominal wound and cut away the superstructure—perform, in fact, the original Porro or extraperitoneal stump operation. This is not necessary. After ligating the uterine vessels and cutting away the uterine superstructure, it is easy to invert the stump and from the direction of the vagina seize and draw down the stump, and with T-shaped clamps, or even ordinary hemostatic clamps, control all bleeding. This enables the operator to secure a clean peritoneal cavity and close the abdominal wound.

**Hysterectomy after Rupture of the Uterus.**—Jwanow<sup>41</sup> describes a case of vaginal hysterectomy for rupture of the uterus which occurred in a IIIpara 33 years old. The rupture occurred in a case of hydrocephalus in which craniotomy was performed. When the patient came under observation she was in extreme collapse and the operation had to be performed without anesthesia. Recovery.

**Albuminuric Retinitis occurring during Pregnancy.**—J. F. McCaw<sup>11</sup> states that in all cases in which retinitis appears before the sixth month of gestation, emptying the uterus should be recommended. Cases occurring after that period should be judged according to the amount and severity of the retinitis. Women who have had albuminuric retinitis during previous pregnancies should be very carefully watched for eye and urine changes, for in these cases the most serious results are apt to occur.

**Puerperal Psychoses.**—F. Jaisson<sup>22</sup> divides puerperal psychoses into four classes: those of the beginning of pregnancy, those of eclampsia, those of puerperal infection, those of lactation. He says that those of the beginning of pregnancy are of no special type, but are merely an existing tendency brought out by the pregnancy. Their prognosis is not grave, and re-



covery is usually complete in from several days to several months after delivery. The psychoses of eclampsia may occur from the seventh month onward, and their prognosis is more serious. Those of puerperal infection are of very grave prognosis. Psychoses of lactation vary in their clinical form, not being always melancholia. Their prognosis is relatively good and recovery generally occurs within several months.

**Ectopic Gestation.**—Rouffart,<sup>20</sup> after reporting three cases of ectopic gestation and mentioning tubal disease as a predisposing cause, holds that, as this is the case, the appendages of both sides should be removed when operating for ectopic pregnancy, if those of the side not concerned in the pregnancy show any lesion.

Phocas<sup>21</sup> considers vaginal incision the operation of choice in recent ectopic gestations ending in the formation of hematoceles. In such pregnancies over five months advanced, laparotomy is necessary, as it is in cases of encysted hematocele with repeated hemorrhage. If a hematocele suppurates the vaginal incision is preferable; if an old fetal cyst becomes the seat of suppuration, laparotomy is needed.

Three cases are recorded by J. H. Barbot,<sup>22</sup> in two of which the diagnosis was complicated by the presence of small ovarian cysts. In the third a *twin* pregnancy of two and a half months' duration was found in the right tube. All three cases made good recoveries.

Laphorn Smith<sup>23</sup> records two cases, one operated through the anterior vaginal wall. Both recovered.

Becker<sup>47</sup> publishes two successful operations for extrauterine pregnancy, and in conclusion discusses the advantages and indications for the vaginal operation. The diagnosis must be absolutely assured, and pregnancy must not be beyond the second month. The pubic arch must be of normal width, and vagina and pelvic floor sufficiently elastic.

Haig Ferguson<sup>24</sup> performed abdominal section for an ectopic pregnancy and found the following conditions: On the left side was found a characteristic tubal pregnancy, which ruptured posteriorly through the tube wall close to the broad ligament as soon as it was touched. On the right side was an irregular, much dilated and tortuous tube, which was adherent to the fundus uteri. The tube was filled with serum and contained the bones of a four-months fetus. Both ovaries and tubes were removed. The patient made a good recovery.

**Uterine Pregnancy following Ectopic.**—Funk-Brentano<sup>12</sup> describes such a case, and presents a study of this and 126 others reported in medical literature. Of these, 93 were women who had not been surgically treated for the ectopic gestation. In 37 of these no accident occurred; in 54 the subsequent pregnancy was disturbed. Of the 34 patients who had been operated upon, only 4 had pregnancies later which were not normal. From these facts the writer concludes that the normal evolution of a new pregnancy is almost the rule with women who have received surgical treatment, while the reverse is

true of those who have not been so relieved. Abortion is the most frequent accident, but inflammation of the cyst is the most serious, eight and probably nine of the eleven deaths occurring in the women who had not been operated upon being from this cause. These statements support the advocates of operation, immediate or delayed, in all cases of ectopic gestation.

**Prevention of Hereditary Syphilis.**—A. Fournier<sup>13</sup> advises mercurial treatment of the mother during pregnancy, even though she is healthy, if the transmission of syphilis from the father is feared. This method has proved successful in cases in which the father was affected with syphilis and the mother not. Treatment should be begun as early in the pregnancy as possible, and should be administered twenty days in each month and then suspending the administration of mercury for ten days.

**Rupture of the Uterus.**—Porak<sup>15</sup> describes a case in which labor occurred at the seventh month with a probably cicatricial rigidity of the cervix existing. The case was one of shoulder presentation, with prolapse of the cord and rupture of the uterus, and laceration of the cervix caused by delivery of the aftercoming head. Laparotomy was immediately performed and the peritoneal tears sutured. The patient recovered.

**Acute Inversion of the Uterus.**—C. Haslewood<sup>37</sup> reports a case that came under his charge of a woman who had been delivered by a midwife, who, while trying to deliver the placenta, caused a prolapse and inversion of the uterus. Haslewood, after stimulating the patient, who was almost moribund, gave her ether and reduced the inversion with considerable difficulty.

**Appendicitis during Pregnancy.**—N. Jarca<sup>12</sup> states that pregnancy aggravates appendicitis, that a mild attack may suddenly become violent immediately after labor, and that, on the other hand, appendicitis frequently results in abortion, though not inevitably. Surgical treatment is not contraindicated by the existence of pregnancy. The earlier an operation is performed the greater the chance of a continuation of the pregnancy.

**Menstruation and Lactation.**—L. Jacob<sup>12</sup> has studied 180 cases in which menstruation occurred during lactation. He has noticed that this occurs much more frequently and sooner after delivery in primiparæ than in multiparæ. In primiparæ it takes place usually about the sixth month of lactation; in Iiparæ who have nursed their first children, between the eighth and twelfth months. After the third or fourth lactation menstruation rarely occurs during lactation. In multiparæ nursing for the first time the recurrence of menstruation seems to take place in proportion to the time which has elapsed since the first gestation. Some women menstruate during all pregnancies, some during none. Re-establishment of menstruation does not require cessation of nursing, but when a woman who is nursing for the fourth, fifth, or sixth time has a recurrence

of menstruation much earlier than usual it should generally be stopped. Pregnancy may occur during lactation, and the latter may usually be continued for several months thereafter.

**Pregnancy with Rachitic Pelves.**—Fournier<sup>16</sup> advises the following treatment in cases of rachitic pelves. In generally contracted or flat pelves with a dead child, forceps may be used if the pelvis measures as much as  $9\frac{1}{2}$  centimetres, perforation or basiotripsy if it is smaller. With a living child and the pregnancy not too far advanced, premature labor should not be induced if the pelvis does not measure 8 centimetres, as it would be necessary to do so by seven and a half months at least; if above 8 centimetres it is advisable. If the patient is seen at term and the pelvis measures  $9\frac{1}{2}$  centimetres or more, expectant treatment is indicated, with occasionally the aid of forceps. Between  $9\frac{1}{2}$  and  $8\frac{1}{2}$  centimetres forceps are preferable if the head is engaged or at least fixed; otherwise version. If the head reaches the symphysis in bad position symphyseotomy may be preferable. Between  $8\frac{1}{2}$  and 7 centimetres symphyseotomy should be employed; below 7 centimetres Cesarean section alone is feasible. For transversely contracted pelves induced labor at the eighth month is excellent; if the case is seen only at term, either forceps, symphyseotomy, or Cesarean section may be needed.

**Chorea of Pregnancy.**—Loviot<sup>17</sup> reports an instance of this affection. The patient gave a history of chorea at the age of 14 and mild choreic symptoms toward the close of her first pregnancy. In the third month of her second a violent attack occurred with absolute insomnia. It was necessary to induce labor, and within three or four days recovery seemed complete. A few mild attacks occurred subsequently.

**Autointoxication of Pregnancy.**—G. Bouffe de Saint-Blaise<sup>18</sup> discusses this subject exhaustively. He holds that the autointoxications which exist normally give rise to morbid phenomena only where the organ of transformation, the liver, and those of elimination, the kidneys, are insufficient. Those which are found in the gravid state are increased by pregnancy, certain special poisons being possibly limited to pregnant women. Accidents occur only when the liver and kidney are incompetent. The liver appears to have a preponderating action, and this may be disturbed by previous illness, chronic renal disease, or an accidental affection such as a slight fever. The action of the kidney, though marked, is secondary in importance to that of the liver, accidents sometimes occurring even when the kidney is healthy. The toxins retained in the blood are probably multiple and act differently in various individuals, causing such different symptoms as headache, ptyalism, incoercible vomiting, and eclamptic attacks. The treatment of autointoxications includes the suppression of the formation of toxic substances and increasing their elimination.

**Hydatidiform Mole.**—V. Bué<sup>19</sup> reports a case of hydatidiform mole, in connection with which he calls attention to the

fact that the only symptom is a continued blood-stained serous discharge.

**Eclampsia.**—P. Bar<sup>25</sup> discusses the possibility of a microbic origin of eclampsia. He says that while bacteria are found in the urine of eclamptic patients, the same is true in many cases of ordinary pregnancy. The injection of large amounts of urine into animals shows that their pathogenic power is slight or nothing. Examination of the blood has shown the presence of staphylococci and the pneumococcus, but this occurs comparatively rarely. Similar results have attended investigation of the maternal viscera. The organisms which have been found in cases of eclampsia are those which commonly cause other diseases, and no special characteristic bacterium has been found in all cases which is capable of reproduction and exists only in this affection. The author holds that while infections by the staphylococci, pneumococcus, or colon bacillus may cause lesions of the liver and kidney, which seem to lead to the onset of eclamptic seizures, they bear no known etiological relation to the disease.

E. Bonnaire<sup>14</sup> holds that, except in cases in which eclampsia begins long before term, when the fetus is not viable, the interest of the child as well as that of the mother demands rapid evacuation of the uterus. For this purpose he favors digital and bimanual dilatation of the cervix.

**Incomplete Abortion.**—Gaulard<sup>26</sup> usually employs the curette in cases of incomplete abortion, preferring this, as a rule, to cleaning the uterine cavity with the fingers.

**Central Rupture of the Perineum.**—Such a case, occurring during labor, is reported by Voituriez.<sup>26</sup> As causes of this accident he mentions an abnormal situation of the vulva with a long perineum, a resistant hymen, and rapid expulsion of the child. Threatened rupture may be avoided by pressing the head forward by a finger in the rectum, by episiotomy, or forceps delivery. Actual rupture demands immediate or subsequent perineorrhaphy.

**Placenta Previa, Treatment by Removal of the Uterus.**—Lawson Tait<sup>27</sup> quotes Simpson as giving the mortality in placenta previa at 40 per cent, and then goes on to say: I gather from the smothered confessions of other writers and the open admission of my friends who have had large obstetric experience that it really is much higher; and in spite of the sound principles laid down for its treatment, it is probable that more than half the cases die. I feel sure that the full mortality of the condition is not yet known, so many patients die from the secondary complications due to the damage of the misplaced placental sinuses; and as these cases are generally not fatal till many days after delivery, they are not returned as cases of "placenta previa," but as peritonitis, etc. I gather from conversation that only immediate deaths are, as a rule, entered under the real and primary cause. This is of itself a point of interest about the condition, but not one that concerns me much, though evidently the higher the total mortality



is found to be, primary and secondary, the stronger will be my subsequent argument from this point of view.

Another aspect from which "unavoidable hemorrhage" is extremely interesting is that it is one of the few points in the practice of surgery where our conduct may be influenced by ecclesiastical authority. The Church of Rome rules that in such a case the living birth of the child is all-important, and when the interests of mother and child conflict those of the former must yield. In one case to which I was called by the late Dr. Wynne Thomas this decision, arrived at by the mother and the father of the child, as advised by their spiritual directors, seemed to us to cost the mother her life, though it did save the child. Under such circumstances that part of the treatment directed against the immediate risk from hemorrhage has its influence for good directly contravened, and probably entirely annulled, by the causes introduced and the risks produced of secondary mortality. All these conditions existed in a case to which I was called on December 21, 1898, by Dr. Herbert Simpson, of Rugby. The patient was young and slightly built, and had as bad a history of hemorrhage as a woman well could have. She had always had "something wrong" inside and had been a regular consumer of ergot for years. She had been twice curetted and cauterized. She had nearly lost her life from postpartum hemorrhage in her second confinement, had had several miscarriages with severe losses, and I found her in her fourth confinement at the full time with the cervix closed and rigid, the liquor amnii drained off, the uterus firmly contracted over the child, and yet she had been bleeding with alarming profusion for five hours, in spite of many other and orthodox points of treatment which Dr. Simpson had employed. The child was easily ascertained to be alive, and the considerations of its interest as superior to that of the mother were not pressed by any one. But I confess that the recollection of previous experiences made me hesitate to do what was clearly necessary, forcibly dilate the cervix and extract the placenta, whether I followed that by version or not, whether or not I left the after-labor to Nature and the child to its fate. An alternative occurred to me to which I was prompted by the splendid success which has followed it in my hand and in those of others under different yet very analogous circumstances—removal of the uterus. It had many arguments in its favor: it would save the child, it probably would save the mother, and it would relieve her of the condition of perpetual misery and risk in which she had been living for years, and would therefore assist her in properly rearing the children she had, rather than tend to procreate others to whom she certainly showed no likelihood of ever being able to give proper care. There were no arguments against except the familiar one of "mutilation." As I have already characterized that as the argument of the brothel-keeper rather than one for the consideration of the physician, I attach little importance to it. Putting myself in the place of the patient's husband, so far as

I could, I felt that the Church of Rome had some reason for its decision, though more as a matter of right than of salvation—that any proceeding which would diminish the mother's risk from 50 per cent or 40 per cent, or even 20 per cent, to 4 or 5 per cent, must be selected. Finally, the argument would have been overwhelming with me as a husband that my wife would have health and comfort for her after-life, instead of misery and risk, irrespectively of sterility or mutilation or anything else. I therefore proposed hysterectomy, and after full discussion it was accepted by Dr. Simpson, by the husband, and by the patient. I performed it with the aid of the elastic ligature, by that known in America as the "Tait-Porro" operation. The patient made a straightforward recovery, interrupted only by occasional rectal distension. A fine female child was born alive and lived for a month, succumbing, unfortunately, a month after birth when the cold weather distributed bronchitis. This case forms, so far as I know, a new departure. Whether it will receive a universal commendation is not the least a matter of doubt. The "mutilationists" will raise their voices against my proposal, but there are others who will follow my example, and to those who do this will surely come the comfort that they will diminish "the anxiety to the practitioner and the real danger to the patient" of the obstetric difficulty which Simpson so graphically tells us has more of both than any other.

#### GYNECOLOGY AND ABDOMINAL SURGERY.

**Movable Kidney.** *Etiology.*—C. S. Bacon<sup>4</sup> states that the displacement of the kidney is due to a combination of two kinds of causes—those which weaken the kidney attachments and those which diminish the support furnished by intra-abdominal pressure. The attachments may be weakened by pressure from above the diaphragm or by tight lacing. They may be weakened by traction made by ureters, colon, or duodenum. They may also be dislodged by blow or jar or other trauma. Gravity is always an important factor, especially in cases of enlargement of the kidney, as in disease, tumor, or menstrual congestion. The attachments may also be congenitally weak, or they may be weakened by emaciating disease when the fat is absorbed. The intra-abdominal pressure is weakened or destroyed by relaxation of the abdominal walls or injuries to the pelvic floor, one or both of which conditions are often the sequelæ of labor, laparotomy, or emaciating disease. Movable kidneys are more common in women, and occur on the right side in about 90 or 95 per cent of cases. This condition generally occurs between the ages of 20 and 40 years, and is often associated with enteroptoses.

*Symptoms.*—G. Fütterer<sup>4</sup> gives the symptoms of this condition as follows: Pains in the back seem to occur most regularly, and they are of a changing character, from dull to sharp. Dizziness is the next most frequent symptom, and then the symptoms due to enteroptosis and the gastric symptoms.

Then palpitation, irregular heart action, distension of the abdominal aorta, throbbing of this vessel, kinking of the renal artery, occasionally a bruit in this place, and in rare cases compression of the vena cava, edema of the lower extremities, and even thrombosis of the inferior cava. Then the symptoms from the nervous system, neurasthenia, trembling, dizziness; headaches, occipital or frontal, and deep depression. In some cases albuminuria or intermittent hydronephrosis.

*Diagnosis.*—H. B. Steleman<sup>4</sup> states that when examining for a movable kidney the patient should be placed in the recumbent position with the shoulders slightly raised and limbs drawn up, or lying upon the side opposite to the affected kidney with the limbs flexed, which insures less reflex action of the abdominal muscles, always an embarrassing feature to the examiner. Moreover, if, after having used the recumbent or lateral position, the sitting posture is tried, one is able frequently to reduce or dislodge the vagrant organ at will. Deep inspiration, coughing, or change of position will aid in bringing the organ into the field of palpation. In palpation, the patient being in the recumbent position, the left hand of the examiner is placed over the lumbar region and the right hand at a point opposite on the abdomen, and by slow, gentle, and deep pressure one may be able to insinuate the latter hand into the abdominal wall to a degree that deep structures may frequently be readily recognized. In this procedure the anterior hand should be kept immobile so as not to stimulate muscular contraction, and at the same time one should render the tactile sense as acute as possible; then, by pressing the posterior hand forward, one is not only able to distinctly recognize the lower edge of the kidney in partial dislocation, but, by pressing both hands together, cause it to glide back into position, or, if it has escaped beyond the costal arch, by careful pressure to fully outline the shape of the entire kidney. The percussion note over the lumbar region of a displaced kidney is frequently more tympanitic, and the resistance over the same area is lessened. A quantitative and qualitative analysis of the urine may throw much light upon obscure points. Intermittent hydronephrosis, in addition to the increase in the size of the kidney, the accumulation of urine, followed by discharge and ease from pain, is quite characteristic.

*Surgical Treatment.*—L. L. McArthur<sup>4</sup> advises the following operation, the steps of which are: 1. A curved transverse incision below the last rib is made through all the structures at once down to the peritoneum anteriorly. 2. The peritoneum is then loosened from the lateral parietal walls by blunt dissection sufficiently to permit boldly enlarging the posterior angle of the wound without fear of injury to important structures quite back of the quadratus. 3. Fatty capsule of the kidney loosened by blunt dissection. 4. The anterior layer of the lumbar fascia and transversalis aponeurosis is then loosened from the tissues on which it lies, to such an extent as will admit the kidney in the pocket thus made; the lower flap of

wound having a compartment for the lower half of the kidney. 5. Prior to inserting the kidney in the new compartment, the cut edges of the transversalis aponeurosis have inserted in them two or three stitches, which serve to pucker the pocket containing kidney. 6. The kidney having been dislocated first upward, its lower end is slid into the pocket. 7. Closure now of the stitches in the aponeurosis of the transversalis fixes the lower half of the kidney external to one of the layers of the abdominal parietes, supporting the same by so broad a surface that no injury to kidney can result and no displacement occur, and employing a normal tissue not transplanted. He has found it sufficient to make the pocket for the lower half of the kidney and would suggest its use in the movable cases, where a very complete arresting of its wanderings can be secured. Two or three stitches can be made to hold the kidney until adhesions form. By this arrangement, too, the movements of the other abdominal organs cannot dislodge the kidney in question, it being external to one of the layers of the abdominal wall, and pressure from above tending to drive it deeper into the pocket thus formed.

**A Third Kidney.**—W. Watson Cheyne<sup>28</sup> reports a case of a third kidney. This kidney was well formed and was situated on the right side a little below the normal right kidney. It had its own ureter and blood supply. The above kidney was found while making an exploratory operation to determine the cause of pain and a tumor in the lower part of the abdomen. The kidney was found to be a little movable. It was sutured in place and the woman was relieved of her pain.

**Complete Incontinence of Urine.**—L. G. Baldwin<sup>4</sup> reports three cases of the above variety. In two of these cases the incontinence was due to a prolapse of the ureters at the upper third of the vagina. Both these cases were cured by the use of a rather small and short Emmet hard-rubber pessary. In the third case the urethra had been torn from its moorings back of and underneath the arch of the pubis by straining while at stool. In this case the pessaries failed, so he used a hard-rubber ball one and three-quarter inches in diameter. This gave complete relief.

**Complicated Vesico-utero-vaginal Fistula.**—Mundé<sup>29</sup> describes the following operation which he performed on a large cicatricial fistula involving the base of the bladder, the anterior vaginal wall, and a portion of the cervix:

To close the rent in the anterior wall of the cervix he attempted to peel the bladder from the uterus with the finger, after making a transverse incision across the cervix. The finger suddenly burst through the thin adherent peritoneum, tearing also the attached wall of the bladder. He at once repaired these rents with catgut sutures, and closed the tear in the cervix also with catgut, deferring the remainder of the operation to a future time. Ten days later a second attempt to close the fistula readily brought its edges together with numerous silver-wire sutures. In order to make sure that the external os remained in the vagina an assistant kept a sound in



it, which accidentally slipped out, and on replacing it, it passed into the bladder and through its posterior wall. As only gentle force was used, it was evident that a rent existed in the bladder wall, probably the old tear which had not healed. He rapidly closed the fistula, moved the patient into Trendelenburg's position, opened the abdomen, and exposed the rent. It extended for fully an inch and a half transversely from about the middle of the bladder toward the left, was situated at the bottom of the vesico uterine pouch, and was finally closed by stitching the body of the uterus and the broad ligament to the bladder. The line of sutures extended from the bottom of the peritoneal fold, joining the broad ligament and the bladder on the left side almost to a corresponding point on the right. The bladder was then distended with a solution of methylene blue and found to be absolutely tight. Deep silkworm-gut sutures were used to close the abdominal incision. A soft permanent catheter was placed in the bladder and the head of the patient's bed elevated to facilitate urinary drainage. Recovery was uninterrupted so far as the abdominal operation was concerned, but the vaginal fistula part was a failure. Urine had infiltrated the wound, and absolutely no union resulted, not even of the uterine rent. One month later, when there seemed to be no danger of a reopening of the peritoneal fissure, a third attempt was made to close the fistula. The vagina was closed transversely from the posterior vaginal vault to the meatus with a double tier of thin silver-wire sutures, making a wide denudation. As the neck of the bladder was destroyed, the remnant of the urethra was cut out and a longer canal built up by denuding and uniting the nymphæ nearly to the clitoris. A permanent soft catheter was kept in the bladder for fourteen days, and the patient directed to lie constantly on the side. There was no leakage; the sutures were removed on the twelfth day, and union was found to be perfect. After the removal of the catheter the patient was allowed to sit up and directed to urinate at least every two hours. It was feared that the newly formed urethra might not have retentive power, but fortunately this fear proved groundless. The patient was not only able at once to hold her urine, but could pass it at will. A vagina of sufficient depth for copulation remains.

**Remedial Treatment of Cystitis in the Female.**—J. H. Etheridge<sup>33</sup> states that the bowels should be kept open by the daily administration of a saline. Diversion of the blood current toward the intestinal canal under saline laxatives tends to diminish the amount of blood in the wall of the bladder and relieves the pain. An inactive, dry skin should be treated with salt crash towel rubbing daily. This is to promote diaphoresis. Deranged systemic conditions, such as indigestion, gout, and especially the exanthemata, should be carefully treated. Under an exclusive diet of milk some cases of great severity and long standing have been cured. The bill of fare should consist largely of fluid food. For the relief of pain and tenesmus opium is of the greatest importance. It can be used as

Dover's powder, with camphor. Its chief objection is the induction of the opium habit. Chloral hydrate and the bromides often give relief. To correct hyperacidity of the urine give alkaline salts, and, on the other hand, give benzoic and boric acid and the mineral acids to change the alkaline reaction. For intravesical medication a one-tenth to a one-half per cent solution of silver nitrate is of the greatest importance. At first it can be used once in two days, then daily until its further use can be discontinued. Where there is ulceration or suppuration in the bladder use a weak solution of carbolic acid, a drop to a drachm. Where the urine is loaded with mucus and pus use tannin, ten grains to the ounce. In like manner zinc sulphate, plumbic acetate, infusions of hydrastis, potassium chlorate, and many other remedies have been used.

**Urine of Cystitis.**—J. A. Wesmer<sup>33</sup> believes the urine of a female in whom cystitis is suspected should be obtained by the catheter. This rule, if followed, will avoid the possibilities of contamination from the vagina. Cystitic urine, as a rule, contains many leucocytes and bacteria. Its reaction may be acid or alkaline, depending on the character of the bacteria present. If the infection is by the bacillus coli it is acid; if in addition it becomes infected with the bacillus vulgaris it becomes alkaline. This last organism converts urea into ammonium carbonate. Of 300 specimens of cystitic urine examined, 69 per cent were acid and 21 per cent were alkaline. Two tests are employed for the detection of pus and leucocytes in the urine. The chemical one, recommended by Vitali, is applied as follows: The suspected urine, if alkaline, is treated with enough acetic acid to make slightly acid; filter and add to the residue a few drops of freshly prepared tincture of guaiacum. If pus be present the inner surface of the filter takes on a blue tint. Wesmer has found this test to be very satisfactory, even when there was only a trace of pus present. The other test is the microscopical.

**Aneurism of the Uterine Artery.**—Mundé<sup>32</sup> reports a case of the above variety on account of its great rarity. Upon examining the patient he found a softly elastic, strongly pulsating and thrilling tumor, of about the size of a hen's egg, projecting into the left vaginal vault, close to the cervix, and extending slightly down on the left vaginal wall. At one point next to the cervix there was a "purr," so pronounced and distinct as to make him apprehensive that the aneurism, as it clearly was, might burst at any time.

Through a four-inch incision in the left semilunar line he opened the abdomen in Trendelenburg's position, and after some difficulty in isolating the artery, especially from the ureter which crosses it and lies close to the inside of it at that point, he succeeded in passing a Deschamps pedicle needle under it and ligating it gently but firmly, so as not to injure its coats, with chromicized catgut. Before doing so, the finger of an assistant on the aneurism in the vagina told when pressure on a certain part of the artery arrested pulsation in the

aneurism, and it was at the spot thus indicated that the ligature was applied. When tightened, pulsation in the aneurism ceased entirely. The wound in the peritoneal covering of the vessels was closed by fine uninterrupted catgut suture, and the abdominal incision by buried catgut and deep silkworm-gut sutures. Recovery was uneventful. Immediately after the operation there was a faint, apparently transmitted pulsation in the aneurism, which at the end of a week had increased somewhat, probably owing to the establishment of collateral circulation. The purr and thrill had, however, entirely disappeared, and never returned, and the outer portion of the aneurismal swelling had become hard and solid and had evidently contracted. Wishing to make as perfect a cure as possible before discharging the patient, he decided to try the effects of galvano-puncture of the aneurism, and twice at intervals of three days passed a current of twenty milampères through the sac for half an hour, a carefully insulated platinum needle being thrust deeply into the centre of the aneurism and connected with the positive pole, the negative pole being a large wet sponge under the left buttock. The effect of these two galvanic sittings in hardening and shrinking the aneurism was very apparent. Six weeks after the operation the aneurism had shrunk to one-half its original size, was hard and painless, and pulsated no more than a normal uterine artery.

**Elephantiasis of the Vulva.**—W. D. Bullard<sup>34</sup> reports a case of the above variety, the duration of which was twenty-seven months. The patient's first intimation of any trouble was severe itching on the inner side of the left labium, where, on examination, she found a number of small lumps resembling pimples. From this time on the labium increased in size. About one year later the other labium began to increase in size, and after twenty-two months the clitoris became involved. For two years she had no systemic manifestations referable to the increase in growth of the vulva. At this time the irritation of the surface of the growth, caused by the friction against the thighs and the flow of urine and feces, gave rise to ulcers. On examination there was observed an immense vascular tumor, occupying all the space from the pubes to the knees, and emitting a most offensive odor. This tumor was divided into three parts. The one on the left was the largest, and attached to the whole perineal region and from midway to the umbilicus in front to the coccygeal fold behind. The surface was dark brown, hard, nodular, and seamed with deep fissures filled with a brownish, ichorous secretion. The one on the right was about the size of a muskmelon, chocolate-colored, soft, and arose from a labial pedicle six inches in length and about the size of a man's arm. The central tumor closely resembled a banana and was the hypertrophied clitoris. All these tumors were so sensitive as to render a thorough examination impossible. For forty-eight hours before the operation permanganate of potassium and other antiseptics were used to try and overcome the extremely septic condition of the tumor.

The patient, thoroughly anesthetized, was put in a Clover's crutch and the surface of the tumor rendered as aseptic as possible. The weight of the tumor made it very difficult to handle, but, by the aid of two heavy steel corkscrews embedded in its substance, it could be lifted with ease. By these means the mass on the left side was suspended to a bar placed above the patient. In order to control hemorrhage two extra long Wyeth's hip pins were passed through the pedicle, as close to the pelvis as possible, and the growth was then surrounded by a heavy elastic ligature. The whole mass upon the left was then amputated with a circular incision. All bleeding vessels were clamped as they were divided. There was very little hemorrhage, however, and after ligating numerous large vessels whose walls were held open by fibrous tissue, the elastic ligature was removed. Some oozing followed this step. The mass on the right was tied off in sections by passing heavy catgut ligatures on a needle through different portions of the pedicle and tying and cutting until the whole pedicle was severed. The central portion was amputated with a stroke of the knife. Twelve hours after the operation the patient died, in a condition closely resembling death from morphine narcosis. No morphine had been given at any time. The histological features closely corresponded to fibrous elephantiasis.

**Formalin in the Treatment and Removal of Inoperable Malignant Growths.**—William Mitchell<sup>88</sup> advocates the use of a twenty per cent formalin solution applied on cotton to the malignant growths. He claims that by this method there is no shock, suppuration, or bleeding, and scarcely any discharge. It has great penetrating power, and hence effects a more rapid removal than the usual escharotics. During the parting away of the necrosed parts the macroscopic limits of such a tumor can easily be seen on the dry, clean surface. The pieces removed can be subjected to microscopic examination for the same purpose. The process seems to be efficient and safe. Its drawbacks are pain, which it sometimes causes, and edema. General urticaria can be caused by its absorption.

**Prevention of Sepsis after Laparatomies and Uterine Operations.**—B. Crédé<sup>88</sup> recommends the use of the metallic silver, argentum colloïdale. He believes that this antiseptic will effect all that is possible to prevent sepsis, and will mitigate or cure it when present. He advises its use in septic or infected operations in the abdominal cavity, for uterine operations and large wound cavities. The manner in which it is used is as follows: Pills which contain three-quarters of a grain of argentum colloïdale, the same quantity of sugar of milk, and a trace of glycerin, are placed in the most dangerously situated portion of the cavity or wound. The colloïdal silver is soluble in serum in proportion 1:25, and it remains in solution in albuminous fluids. If the pure silver solution comes in contact with pathogenic cocci, lactate of silver will presumably be formed and exercise its antiseptic effects. The pills may be made to stay in the uterus by wrapping them tightly in a strip of



gauze. He prepares his silver catgut and silver silk as follows: The catgut, just as it comes from the factory in thick coils, but somewhat loosened, is placed in a brown glass, wide-necked bottle; if a white glass receptacle is used it must be covered with black paper. A solution of the lactate of silver, 1:100, is then poured in until the catgut is completely covered. Here it remains for one week; then it is taken out and placed in an ordinary large glass vessel, covered with glass, and exposed to the brightest possible light. The lactate of silver in the swollen threads is reduced to metallic silver, and the fibres become brownish black. Then the catgut is washed in boiled water until the wash-waters come away clear. It is then placed in a large flat glass vessel and covered with a double layer of muslin. After it has dried for two or three days it is straightened out with carefully washed hands, cut in 30 centimetre (12 inch) lengths, and tied into bundles. It is preserved in a long metal box similar to that used for catheters, wrapped in four folds of muslin. Before use it is best placed for fifteen minutes to an hour in alcohol, in which it remains until it is used up. Catgut so prepared is absolutely sterile and acts antiseptically so far as the silver that it contains reaches. The silver silk is prepared in exactly the same way, but it must be left in the lactate of silver solution for fourteen days, because its imbibition is slower. The color of the prepared silk is only light brown. It is to be preserved like the catgut, but is not cut into short lengths; it should also be placed in alcohol before it is used.

**Imperforate Hymen.**—B. MacMonagle<sup>39</sup> reports 2 cases of imperforate hymen in girls 20 years old. In both cases an oval strip was excised from the hymen, and the edges of the wound whipped with No. 2 cumol catgut. The retained menstrual fluid was allowed to escape very slowly. The vagina was douched with sterile boric solution and tightly packed with iodoform gauze. Reaction from the operation was good.

**Retroversion of the Uterus.**—L. G. Richelot<sup>42</sup> states that simple, movable retroversion occurs most frequently in women of the arthritic diathesis. Such cases may be treated by pessaries and the abdominal belt. For adherent retroversions following infection he employs in addition to these measures uterine massage and hysteropexy. He considers abdominal suspension of the uterus a good operation, and also favors vaginal hysteropexy. This procedure he carries out by a transverse incision of the anterior cul-de-sac, through which he opens the peritoneum, explores the uterus and appendages, breaks up adhesions, and draws the uterus downward by forceps. The uterus is fastened down by three transverse sutures, which enter the vaginal wall at one side of the incision, traverse the uterine tissue on its anterior surface at points between the os internum and the Fallopian tubes, and emerge at points at the other edge of the vaginal wound corresponding to those at which they entered. The portion of the vaginal incision remaining open is closed by several sutures running antero-pos-

teriorly. By this method the uterine fundus is left free to expand in pregnancy. The writer has had several cases in which the replacement appeared permanent.

**Prolapse of the Uterus.**—Delaunay<sup>40</sup> states that if the genital prolapse is not accompanied by marked lesions of the uterus, plastic operations upon the vagina are alone necessary, triangular sections of the anterior and posterior vaginal walls being removed and the edges of each approximated. If the cervix is slightly hypertrophied and the woman young, amputation of the cervix is indicated; and if the patient is aged, and especially if the uterus is fibroid or the cervix greatly hypertrophied, vaginal hysterectomy is advisable.

**Chronic Inversion of the Uterus.**—J. W. Struthers<sup>36</sup> reports a case of the above variety cured by manipulation after posterior colpotomy had been performed.

**Laceration of the Bladder.**—Bardesco<sup>7</sup> has successfully treated two cases of laceration of the bladder wall produced during vaginal hysterectomy. Using a sound in the bladder as a guide, he applies clamps to both lips and both extremities of the tear, passes and ties a submucous purse-string suture around the opening, unites the muscular layers of the bladder by a continuous suture, and finally sutures the free border of the peritoneal flap from the vesico-uterine fold, which has been freed by the hysterectomy, to the upper end of the anterior vaginal wall.

**Electricity in Gynecology.**—Kaplan-Lapina<sup>41</sup> cites 16 cases in which electrical treatment of catarrhal affections of the appendages has proved satisfactory. The author concludes that chemical galvano-caustic, either intrauterine or vaginal, applied by Apostoli's method and according to his indications, is a powerful symptomatic remedy for catarrhal diseases of the appendages complicated with endometritis, and is to a variable extent curative. In suppurative disease of the appendages this method is available for diagnostic purposes, a weak current being employed and all precautions taken. In 9 of the 16 cases treated a subsequent pregnancy was facilitated.

E. J. Marques<sup>41</sup> advises the undulating current for dysmenorrhea and intermenstrual pains. In many arthritic, neuroarthritic, and nervous cases in which other means failed he has obtained cessation of menorrhagia, metrorrhagia, leucorrhea, and edema and exudates in the region of the uterus and appendages. He has been unable to observe any resolution of uterine fibroids under this treatment.

**Tumor of Cervix.**—Baraban and Vautrise<sup>43</sup> describe a tumor of the cervix consisting of a fibroid containing a cyst lined with cylindrical epithelium which was ciliated in places, and in portions with stratified squamous epithelium. This epithelial lining showed that the growth did not consist of a fibroid with softened centre. The writers believe that it was formed by the inclusion and persistence of a portion of the duct of Müller.

**Hernia of the Tubes.**—A case of double inguinal hernia of

the Fallopian tubes is recorded by P. Wiart.<sup>43</sup> The ovaries were not involved in the sac. The patient was  $2\frac{1}{2}$  months of age and the lesions evidently congenital.

**Fibromyoma of Fallopian Tube.**—C. Jacobs<sup>46</sup> reports the removal of a fibromyoma arising from the muscular coat of the middle third of the Fallopian tube.

**Appendicitis and Salpingitis.**—In speaking of the diagnosis between appendicitis and salpingitis and of the simultaneous occurrence of these lesions, A. Routier<sup>43</sup> describes a case in which a fecal concretion which had perforated a diseased appendix had become embedded in the Fallopian tube of the right side.

**Cysts of the Appendages.**—Delaunay<sup>44</sup> favors the vaginal route for the removal of many cysts of the appendages, excepting always large multilocular ovarian cysts and those in which many solid adhesions presumably exist. The incision may be made in either the anterior or the posterior cul-de-sac.

**Closure of the Abdominal Wound.**—G. Minxevitch<sup>42</sup> believes that the most important factors in obtaining a good result in closing abdominal incisions are a median incision in ordinary cases, the use of silk as suture material, and suture *en masse* in cases with abdominal walls of ordinary thickness. The last conclusion is based upon the microscopic examination of nineteen tier and mass suture cicatrices.

**Cow-horn Wound of Abdomen.**—Bell<sup>45</sup> records the case of a woman whose abdomen was ripped by a cow's horn so that some twenty feet of small intestine and eighteen inches of transverse colon were protruding. Four hours later Bell saw her, washed the gut in a 1:40 carbolic solution, replaced it, and sewed up the wound. Patient's surroundings were dirty and she had no skilled nursing, but her recovery was absolutely uneventful.

**Uterine Fibroids.**—C. Jacobs,<sup>46</sup> after reporting a number of cases and discussing the subject of uterine fibroids, advocates total abdominal hysterectomy for their removal. He employs the following technique: Trendelenburg position; median abdominal incision to the pubes; free adhesions of intestines to uterus and appendages; divide the broad ligament external to the appendages to beyond the round ligament; apply artery clamps to the ovarian artery and round ligament; cut the broad ligament to the level of the os internum; clamp uterine artery; repeat on other side. If the bladder is attached high on the anterior surface of the uterus, incise the peritoneum above and strip it off by pushing with sterile gauze. Amputate the uterus at the level of the os internum. If total hysterectomy is to be done, draw up the cervix; isolate the uterine arteries with scissors, clamping branches to cervix divided and pushing away the ureters. Incise cervix anteriorly or posteriorly from above downward to attachment of vagina; free entire circumference of cervix from vaginal connections and remove. It is seldom necessary to clamp arteries thus divided. Ligate branches of uterine artery to cervix. Place continuous

suture uniting anterior and posterior vaginal walls; apply ligatures to ovarian and uterine arteries and round ligament of both sides; unite layers of broad ligament over these by continuous suture applied like a Lembert suture. Over the vagina this suture is made to include the subvaginal cellular tissue. Another similar peritoneal suture is applied over the vaginal stump. If the cervix is to be left *in situ*, it is divided, bevelled, its mucosa cauterized, its lips sutured together, and the stump formed covered as above. The ligatures and sutures employed are black silk sterilized in formalin or alcohol.

E. Stanmore Bishop<sup>28</sup> states that as long as fibroids give rise to no marked symptoms and show no tendency to enlarge they may be ignored; if, however, they are definitely increasing in size, it is wiser to remove the entire uterus, leaving all the ovarian tissue possible, whilst the tumor is yet fairly small. In this way the risk of the operation will be diminished as far as possible, the patient will be in the best condition to insure success, and will be saved most of the miserable but inevitable results of this disease.

A. H. Goelet<sup>31</sup> advises that large intrauterine tumors, too large to be removed by the vagina through a dilated cervix, should be removed through an abdominal incision in the same manner as the fetus in Cesarean section. It is well to be satisfied that the tumor is not a suppurating myoma, before the incision is extended the full length of the uterus, and, if it prove to be, the incision must be closed and the whole uterus removed. The margin of the uterine incision must be carefully protected from contact with the contents of the uterus, and from handling, with gauze pad. The tumor is then rapidly separated all around from the uterine wall with fingers and closed scissors until the pedicle or base of the tumor is reached. This is detached by curved scissors and the incision in the uterus closed. Irrigate the uterus every two or three days after this.

J. Godard<sup>36</sup> reports the removal by enucleation of an intraligamentous fibroid weighing six and a half pounds. He urges the performance of this operation instead of total hysterectomy, whenever it is feasible.

E. Camelot<sup>36</sup> records two cases of carcinoma of the body of the uterus in connection with uterine fibroids. He believes that this is not a mere coincidence, but that the fibroid bears an etiological relation to the malignant growth.

E. Schwartz<sup>37</sup> advocates vaginal hysterectomy for fibroids of small or medium size, preferring median section of the uterus and application of clamps from above downward. If the tumor invades the ligaments or reaches more than half-way from the pubis to the umbilicus, he favors total abdominal hysterectomy, especially if there exists no suppurative lesion of the appendages which might infect the peritoneum.

**Conservative Surgery in Myomectomy.**—Removal of the myoma and preservation of the uterus, with or without utero-vaginal drainage, is coming to be more and more the operation



of election. Eleven years ago E. C. Dudley<sup>69</sup> reported a case of myomectomy by abdominal section and drainage from the interior of the uterus into the vagina. In this case no portion of the uterus was removed. Now the conservation of the uterus in myomectomy is frequent. Intramural tumors, even though quite large, may often with the greatest ease be shelled out of their beds and the uterine wounds successfully closed and the abdomen closed without drain; the tumor cavity, if not too large, may be obliterated by closure with numerous interrupted or continuous buried catgut sutures; and, finally, the peritoneal margins of the uterine wound are united by a close row of rather deep Lembert sutures. During the enucleation of the tumor and the closure of the uterine wound hemorrhage is controlled by a temporary elastic ligature around the cervix uteri. Before closing the abdominal wound this ligature is removed and a little time is allowed to make sure that there is to be no hemorrhage from the uterine wound. The mortality of this method for small tumors in which the traumatism is slight is surprisingly small.

In case of a large tumor, and consequently of large traumatism, with enormous surfaces to be united by buried sutures, closure of the uterine wound involves too great danger of sepsis, and the technique should be modified as follows: After the tumor has been shelled out from the uterine wall an opening is made directly from the tumor cavity to the uterine cavity. If the uterine canal is patulous, a continuous strip of gauze is carried from the tumor cavity directly through the uterine canal into the vagina and the tumor cavity packed with the same continuous strip. The temporary elastic ligature around the cervix does not interfere with the introduction of the gauze. The uterine wound is then closed, as above described, by buried sutures and deep Lembert sutures of catgut. The peritoneal margins of the wound, thus turned in and united, rapidly grow together, and the whole uterine traumatism, now isolated from the peritoneum, is adequately drained through the vagina. No abdominal drain is required. If the uterine canal is not sufficiently patulous, it may be dilated, or bilaterally incised by means of a herniotomy knife, or it may be both dilated and incised. The vagina is loosely filled with gauze to meet that which protrudes from the uterus; an absorbent vulvar dressing, to be changed as often as it becomes moist, completes the capillary drain. The gauze is removed in two or three days. Care is necessary in the closure of the uterine wound that the gauze be not caught in a suture, because then its removal would have to be postponed until after the absorption of the suture.

The same principles will apply to an intraligamentous tumor. An intraligamentous myoma may be shelled out from its bed between the folds of the broad ligament. The same mode of drainage may be used as in the case of intramural tumors, except the route of drainage. This should not be through the uterine canal, but through an opening which is readily

made from the tumor cavity to a point in the vagina just back of or in front of the uterus. In exceptional cases it may be necessary for the purposes of hemostasis to ligature the ovarian or uterine arteries, or both. Experience has shown that sloughing of the uterus from thus cutting off its blood supply is not to be feared.

Intra-abdominal closure of the abdominal wound and vaginal drainage of the tumor cavity was early suggested by August Martin, of Berlin, but this surgeon appears not to have developed or practised the method extensively.

Dudley's own experience during several years with the above technique shows: first, almost entire freedom from mortality; second, prompt and uneventful recovery; third, the most gratifying permanent results. The method is undoubtedly applicable to a much larger number of tumors than is generally supposed. Any surgeon who is constantly alert to enucleate the tumor and preserve the reproductive organs will be surprised at the number of cases in which this is entirely feasible. The mutilating operation of hysterectomy for myoma is often necessary, but not so often as the statistics of the present time would indicate. In the vast majority of cases the uterine appendages will be found normal; and in a large proportion of the majority the tumor may be enucleated from the uterus and the wounds successfully closed, precisely as would be required for the removal of such a tumor from any part of the body. Cases of very large tumors, and cases in which many small tumors are scattered through the uterine wall, may require hysterectomy, but the conservative operation of simple enucleation will often apply when the tumor is even larger than the fetal head, and in cases of multiple myomata even when there are several tumors.

**Uterine Fibrocyst containing Pneumococci.**—The patient came to E. C. Dudley<sup>69</sup> with the history of an operation for the removal of a uterine myoma eighteen months before. The wound had suppurated and did not completely heal, and about six weeks after the operation pus had appeared per vaginam. Fever and chilly sensations had continued for eight or more weeks after the operation. Abdominal and vaginal sinuses discharging variable quantities of pus and at times feces had persisted and were present.

At the operation the firmly embedded cyst was enucleated from the space between the folds of the right broad ligament. The abdominal and vaginal sinuses both communicated with the cyst. At one point it was apparent that a communication had once existed between the cyst and bowel, but the opening had closed by cicatrization. In the enucleation of the cyst care was necessary not to re-establish this opening. The sinus connecting the cyst with the vagina was enlarged by free incision for the purpose of vaginal drainage.

A long, continuous gauze drain was packed into the space from which the tumor had been removed, and brought out through the vagina. The edges of the two folds of the broad

ligament were then united over this packing by a whipstitch, and thereby the field of the operation was rendered extraperitoneal. The abdominal wound was closed without drain. No part of the uterus or its appendages was destroyed. At the end of the week the vaginal gauze drain had been gradually removed. The patient made an uninterrupted recovery.

On microscopic examination the tumor proved to be a fibrocyst. It probably originated as a myoma, and through degenerative changes lost its muscular elements and became cystic. The contents of the sac were purulent and swarming with pneumococci. No case has hitherto been reported of uterine fibrocyst with pneumococcus infection.

**Uterine Adenocystoma.**—E. C. Dudley<sup>50</sup> records the removal of a tumor of the broad ligament from a woman of 60. The gross indications were that the tumor originated in the uterus and developed into the broad ligament. Its connection with the uterus was too intimate to be explained on the supposition of an extrauterine origin and subsequent uterine adhesion. It may have been originally an adenomyoma of the variety described by Recklinghausen as originating in a remnant of the Wolffian body. A pure adenoma springing from the outer wall of the uterus is rare and interesting.

**Fibroma of the Ovary.**—C. Borremans<sup>46</sup> records four cases of ovarian fibroma successfully operated upon. In one the lesion was bilateral, the two growths weighing together about thirteen pounds. The possibility of this case being sarcomatous is suggested by the recurrence of multiple sarcomatous nodules of the abdominal wall within two years. In another case a single fibroma of the ovary weighing fourteen pounds was removed.

**Tuberculosis of the Ovary.**—Rindfleisch<sup>48</sup> describes the case of a woman, 33 years old, who, since her last confinement in her twenty-sixth year, was afflicted with a fistula near the anterior superior spine, which discharged feces and pus. At the subsequent operation tuberculosis of the ovary was found to be the cause. The ovary had suppurated and eroded the descending colon. The diseased portions of the gut were removed, also the tuberculous ovary, after which recovery took place.

**Calcareous Nodule in Ovary.**—Reis<sup>49</sup> describes 3 cases of calculus formation within the ovary. The microscope showed the absence of structure. Chemically it was found that these calculi were of a fibrous substance containing fat and cholesterol carbonate and phosphate of calcium. According to Reis the literature contains only four analogous cases. The calculi form at the site of the corpus luteum through a process of retrogressive metamorphosis.

**The Treatment of Tuberculosis of the Bladder.**—Schröder<sup>49</sup> describes a carefully observed case of tuberculosis of the bladder treated with a new preparation of tuberculin. The patient was 39 years old, and during childhood suffered from coxitis. The bladder affection dates back about four months.

Cystoscopic examination of the bladder and urine showed ulcerations and nodules in the bladder and the presence of tubercle bacilli. The treatment consisted of washing out of the bladder with boric acid and the application of solution of nitrate of silver. Later tuberculin injections were added. The doses of tuberculin administered ranged from one five-hundredth to twenty milligrammes. After six months the patient was so much improved that she could be discharged. She returned, however, after six months because the disease had recurred. Schröder is in doubt whether the irrigation of the bladder or tuberculin injections caused the improvement. Both, however, were not sufficient to produce complete cure.

**Vaginal Atresia.**—Eberlin<sup>49</sup> reports 2 cases of complete atresia of the vagina during parturition. The treatment consisted in circular excision of the obstruction and uniting of the edges of the wound. The author does not believe that the atresia was congenital, otherwise impregnation could not have occurred. He ascribes the condition to gonorrheal vaginitis and traumatism during coitus.

**The Pathology and Therapy of Uterine Gonorrhea.**—Schultz<sup>49</sup> investigated 200 cases in the St. Rochus Hospital. He states that only the absence of gonorrhea from the secretion proves that the case is no longer infectious, no matter whether the secretions are purulent or not. He found that even if gonococci are present the secretion may be perfectly clear and non-purulent. The statement of Bröse that in every case of gonorrhea the disease ultimately invades the uterus, was not confirmed. In 38 per cent of gonorrhea of the cervix the disease did not extend to the interior of the uterus. The investigations show, however, that the adnexa are very frequently attacked. In treating these cases various drugs were employed, but the best results were obtained with ten per cent intrauterine injections of argentanin. These injections must be administered about twice a week until the gonococcus has entirely disappeared, unless inflammatory processes should contraindicate intrauterine treatment.

**Generalized Gonorrheal Infection.**—J. Hallé<sup>57</sup> records in detail a case of gonorrhea which presented at first only the symptoms of a hemorrhagic metritis. In spite of treatment a suppurative peri-arthritis of the elbow joint followed, and then a hectic fever marking the invasion of the heart. Autopsy showed a malignant endocarditis with vegetations upon the aortic valve, and secondary lesions of severe septicemia in the abdominal viscera. Bacteriological examination disclosed the presence of the gonococcus in the uterine discharges, peri-arthritic pus, and aortic vegetations.

**Post-operative Psychoses.**—Dolérís<sup>58</sup> adds to 9 cases previously reported an account of 3 instances of systematized delusions following operations upon the genital apparatus. One believed that her entire genital system was absent; another, that the orifices of the urethra, vagina, and rectum were impermeable; the third thought that the anus was absent and



that tumors of the external genitals appeared and disappeared at frequent intervals. These delusions occurred after operation in neurasthenic subjects without hereditary nervous disorders.

**Torsion of the Pedicle in Ovarian Tumor.**—Mundé,<sup>53</sup> in a recent paper, states that adhesions to the parietal and visceral peritoneum are the most frequent complications of ovarian tumors. More rare are inflammation and suppuration of the tumor, and still more unusual, bursting of the cyst and evacuation of more or less of its contents (accordingly as the cyst is a monocyst, or a polycyst only one of the compartments of which bursts) into the peritoneal cavity, and the usually resulting peritonitis. Between these two conditions lies the twisting of the pedicle of the tumor, which presents one of the most curious and interesting features encountered in the development and pathology of ovarian tumors. This phenomenon was first reported by Hardy, of England, in 1845. The pedicle connecting the ovary with the uterus consists of the broad ligament, Fallopian tube, and ovarian ligament, and is usually not more than two inches long and an eighth to a quarter of an inch thick. The larger the tumor, especially if it is a polycyst with thick, viscid or colloid contents, the thicker the pedicle is likely to be, and therefore, even if rather long, the less likely to become twisted. And if the tumor has attained so large a size as to more or less fill the lower portion of the abdominal cavity and to be compressed by its walls, there is then little danger of its being turned on its axis and of its pedicle becoming twisted. The Fallopian tube is not always included in the twist, which may be directed inward, toward the uterus, or the reverse. Torsion of the pedicle may thus safely be said to occur and be possible only when the tumor is small and still freely movable in the abdominal cavity. Two conditions are therefore essential to the production of a torsion of the pedicle of an ovarian tumor: 1. A long, slender pedicle. 2. A small tumor, not larger than a fist or at most a cocoanut. The size of the tumor when removed does not indicate its size when the torsion occurred, for it has grown with each twist. Further, the tumor must lie in the abdominal cavity, for the freedom of motion necessary to torsion of the pedicle is not present when the tumor lies in the pelvic cavity, as is often the case when it is still so small as to find room in its usual location behind the uterus in Douglas' pouch.

What particular agencies are to blame for the rotation of an ovarian tumor is not definitely known. Most likely the peristaltic movements of the intestines and their frequent gaseous distension play a prominent part in the axis-rotation of the tumor, and probably accidental jars and shocks or a lateral recumbent position of the woman assist in the process. The irregular shape of multilocular tumors of the ovary; the lateral inclination given to an intrapelvic ovarian tumor as its growth forces it past the sacral promontory out of the pelvic cavity; and the displacement of the tumor by the gradual growth of a

pregnant or fibroid uterus, or the sudden emptying of a pregnant uterus, are other factors possibly chargeable with this accident. The torsion may be either gradual or sudden, either partial or total. The pedicle may be twisted once on itself or several times, until it has become so thin as to appear on the point of breaking. In accordance with the number and tightness of the twists the circulation of the tumor is more or less interfered with, and an acute serous exudation takes place into the cyst, if the tumor is cystic, or the effusion may be bloody, or the walls of the cyst or the mass of the tumor may become edematous or infiltrated with blood.

Ovarian tumors are ordinarily not painful, even on pressure, unless complicated by adhesions or inflammation. Hence, when an ovarian tumor is met with which is of small size, movable and painless on pressure, and which suddenly increases in size, becomes tender to the touch, and loses its former mobility, the suspicion of acute congestion or inflammation of the tumor is justified, and the assumption that the change is due to a torsion of its pedicle is warranted. No other causes known to me are likely to produce such phenomena in an ovarian tumor. Only small dermoid tumors of the ovary, the pedicle of which is equally liable to torsion, at times become inflamed and undergo suppuration, probably in consequence of their greater vascularity and susceptibility to bruising, such as may occur during coition, parturition, or the passage of hard scybala, when the tumor is intrapelvic.

Torsion of the pedicle of an ovarian tumor may occur on either side, but scarcely on both sides if there happen to be two ovarian tumors at the same time, as often occurs. This is easily explained, for there may be ample room for one ovarian tumor to rotate, but not for two. At least Mundé has never seen two twisted pedicles at the same time in the many cases of double ovarian tumors on which he has operated. A curious feature is that often the tumor lies on the side of the abdomen opposite to that from which it sprang. This is explained by the natural impulse given the tumor during the process of rotation; once on the opposite side, its rapid increase in size keeps it there, as well as the adhesions which the inflamed tumor forms to the neighboring organs. The direction of the torsion in such cases is inward toward the uterus.

The *first* result of the torsion is the greater or lesser interference with the circulation and nutrition of the tumor; the *second*, its increase in size from serous or bloody exudation, or from apoplexy into its walls; the *third*, adhesions to omentum, abdominal wall, intestines, or bladder; the *fourth*, gangrene and rupture of the sac, if the tumor is cystic, provided the adhesions do not save the tumor from this fate by supplying the nutrition which has been cut off through its natural channel, the pedicle; the *fifth*, chronic peritonitis, with turbid serous exudation; or, if the gangrenous cyst actually ruptures, acute septic peritonitis and death.

The *diagnosis* of a twisted ovarian pedicle presents the

following salient features: A moderate distension of the sub-umbilical region, with greater prominence either in the median line or on either side; rapid formation of the swelling, which perhaps was merely noticed before; more or less tenderness on pressure; tense but distinct fluctuation, with single or interrupted wave accordingly as cyst is single or multilocular; outline of swelling generally distinct, but sometimes diffused; dulness on percussion over area of swelling; tumor touchable through anterior vaginal vault, and continuous with suprapubic swelling; uterus generally posterior to vaginal swelling; fluctuation wave in vagina continuous with abdominal wave; temperature somewhat elevated, perhaps to  $102^{\circ}$ ; pulse rapid and small; general depression; anxious countenance. The attack has usually come on suddenly, and may have been preceded at an interval of several weeks or months by a similar less marked seizure attended by severe pain. If several twists are found on operation, each twist was probably signalized by an acute attack. If a woman known to have a small ovarian tumor experiences symptoms such as the above-described, the presumptive diagnosis of torsion of the pedicle is justified.

The *differential diagnosis* is not always easy, the difficulty being chiefly to distinguish between an acute appendical abscess and an ovarian cyst with twisted pedicle on the right side.

An ovarian tumor with a twisted pedicle should be removed as soon as the diagnosis is made, or, if the latter is doubtful, an exploratory incision should settle the question. It is not safe to expect or wait for the preservative assistance of Nature in furnishing fresh nutrition to the strangulated tumor by means of adhesions, and still less for the untwisting of the pedicle. An early operation promises a speedy recovery, and this may be one of the instances where a good rule is to operate first and to make the diagnosis afterward.

**Endometritis.**—McMurtry,<sup>62</sup> in speaking of the use of the curette, says: The size of the uterus, the condition of the mucosa, and the character of the discharge will enable the surgeon to recognize the cases amenable to such treatment. When the infected endometrium has become soft, thickened, and friable, with muco-purulent secretion, its thorough removal will be followed by prompt cure. Before resorting to this operation, however, the appendages should be carefully examined, and if additional foci of infection exist therein curettage should not be done. If there are lacerations of the cervix, these should be repaired at the same time curettage is done. In properly selected cases the results are prompt and most satisfactory.

The routine use of the curette, and careless, incomplete application of this instrument, constitute the greatest abuse of the minor gynecological operations. When this instrument is used as a routine office treatment, or is applied without proper preparation of patient, it is fraught with positive and far-reaching danger. Every gynecologist meets constantly with cases of inflammatory diseases of the appendages in which the patient's invalidism dates from such treatment of some simple uterine

trouble. Incomplete curettage is quite as dangerous as to do the operation without careful aseptic precautions. To open up lymphatics and veins, and tear up the infected mucosa and only partially remove it, is an invitation for renewed and active infection. This procedure has been likened to raking over a patch of ground after seeds have been scattered over it. When curettage is resorted to the sharp curette alone should be used. The patient should be prepared the same as for any other operation upon the vagina and uterus. The operation should be done under general anesthesia. After the curettage has been carefully completed, the uterine cavity should be irrigated with hot sterilized water and an aseptic dressing applied over the vulva. Werth has shown that prompt regeneration of the mucosa takes place after curettage. The uterus is admirably poised by its normal position for drainage. Gauze packing does not facilitate drainage, and by stimulating contraction of the uterus causes a great deal of pain. Hemorrhage seldom accompanies or follows the operation in sufficient degree to require gauze packing. No destructive chemical agents should be applied to the endometrium either before or after curettage.

**Gloves in Surgery, Cotton vs. Rubber.**—Lockett.<sup>63</sup> In the present state of surgical asepsis all sources of infection may be practically excluded except the skin of the patient and the hands of the operator and his assistants. The belief that the skin of the patient is not usually the source of infection is strengthened by the fact that the disinfection of the field of operation is usually much more prolonged and thorough than is that of the hands of the operator and his assistants, and by the fact that operations in which the hands do not come in contact with the wound are apt to be followed by excellent results, notwithstanding that the cut and bruised condition of the skin decreases its vitality and resistance to infection. It should also be remembered that the skin of the patient can hardly be said to come in contact with the wound.

Halsted, as a result of his experiments on the disinfection of the hands, came to the conclusion which is now held by many observers, that it was practically impossible to secure absolute disinfection of the hands by existing methods. Even after a condition of surface sterility is obtained, the deeper layers of the epidermis contain bacteria which by prolonged maceration, such as is involved in a long operation, are set free. However careful the surgeon may be, the fact remains that infection may occur from his hands or from the hands of his assistants. It is believed that this difficulty can be in a great measure overcome by covering the hands with a material which can be made absolutely sterile, and which, while impermeable to bacteria, does not materially interfere with the sense of touch, the handling of instruments, ligatures, etc., or the manipulation of such delicate tissues as the peritoneum and intestines. These considerations led to the use of gloves. The character of the glove to be used is of the utmost importance and should have careful consideration.



Halsted has used rubber gloves from the first. Mikulicz, of Breslau, introduced the use of the cheaper cotton gloves; he does not now use them in their original state, but incorporates in them some impermeable material or employs a glove made of impermeable material. Keen used cotton gloves in his clinics at the Jefferson Hospital, but, not being satisfied that they would prevent all infection occurring from the hands, he suggested a series of bacteriologic investigations to determine their value. These experiments were conducted in the laboratories of the Jefferson Medical College Hospital, under the supervision of Prof. W. M. L. Coplin, director of the laboratories.

1. The hands were disinfected. The finger nails were cut short and cleansed. The hands were then scrubbed in hot water with green soap and a brush. They were then rubbed with a mixture of equal parts of calcium chloride and sodium carbonate, especial care being taken to cleanse the finger nails, the paste formed by the mixture being pushed around the edges and under the nails by a blunt-pointed orangewood stick kept for this purpose. The hands were then washed in sterile water and scrubbed in bichloride solution 1:1000.

A glove sterilized in a steam sterilizer for one hour was drawn on the disinfected hand, and one finger of the hand was held in a large mouth test tube containing beef peptone bouillon, the glove finger being moved around in the bouillon for five, ten, and fifteen minutes respectively. A different finger and a different glove were used in each instance, as was also done in the experiments below. The mouth of the test tube was passed through a flame before introducing the finger. The tubes of bouillon were incubated at a temperature of 37° C. for three days, at the end of which time they remained sterile.

2. A sterilized glove was drawn on a non-disinfected hand and a glove finger held in bouillon for five, ten, and fifteen minutes respectively. The tubes of bouillon were incubated and all sooner or later showed infection, the bacteria of suppuration predominating.

3. A non-disinfected finger was held in a bouillon culture of *Bacillus prodigiosus* five minutes. A sterilized glove was drawn on and the finger moved around in a wide-mouth test tube containing bouillon for five, ten, and fifteen minutes respectively. The three tubes of bouillon were then incubated; the tubes quickly showed infection in each case.

4. A sterilized glove was drawn on a disinfected hand and a finger moved around in a bouillon culture of *Bacillus prodigiosus* for five, fifteen, and thirty minutes respectively. The glove was taken off and the finger moved around in a tube containing bouillon for the same length of time as in the previous experiment. These tubes were then incubated and were found to contain in all cases the *Bacillus prodigiosus*.

5. A sterilized test tube and a sterilized glove were taken and one finger of the glove placed in the test tube. A bouillon culture of *prodigiosus* was poured into the finger of the glove;

the pigmented bouillon passed through the glove at once; incubation showed that the glove in no wise prevented the passage of the germ.

6. Gloves were also paraffined according to the method of C. Menge, as follows: Dry gloves were immersed in alcohol, then in pure xylol, then in xylol containing ten grammes of paraffin in solution to each one hundred cubic centimetres of xylol. This solution was kept slightly warm and the gloves allowed to remain in it fifteen minutes, when they were wrung out and dried. A finger of one of these sterilized, paraffined gloves was placed in a sterilized test tube and a bouillon culture of *prodigiosus* poured into the finger. The bouillon culture passed through the glove and was found to contain the bacteria in question.

7. Thinking the fibrin of the blood might so fill the meshes of the glove as to prevent the passage of bacteria, sterilized, paraffined and non-paraffined gloves were immersed in fresh blood (bovine), wrung out and allowed to dry. A bouillon culture of *prodigiosus* poured into a finger of each glove passed through and was found to contain the *bacillus prodigiosus*.

8. In addition to the experiments with paraffined gloves just mentioned, the same experiments were made with them as with the unparaffined gloves, and with the same results. Both the thin German gloves procured by Prof. Keen and the heavier gloves purchased in this country were used in all the foregoing experiments. It was found that these gloves could be sterilized in the autoclave for twenty minutes at a temperature of  $111^{\circ}$  C. or in a steam sterilizer for one hour, and that when so sterilized were found to be free from germs. It was also found that the paraffined gloves could be sterilized one hour in the steam sterilizer without any apparent damage to the paraffin.

The results of the above experiments seem to prove the absolute inefficiency of cotton gloves; both in their original state and when paraffined they fail to prevent infection from the hands. It therefore becomes necessary to look further for a glove which may accomplish the purpose desired.

Perthes, of Leipzig, uses rubber gloves or silk gloves with a rubber covering, and with these on the hands one can feel even the light touch of a brush. Halsted uses india-rubber gloves, which, after boiling, are dropped into large basins containing mercuric chloride solution, filled with this solution by the surgeon who is to wear them, and drawn on while full, the hands having been previously disinfected as if the gloves were not going to be worn. The same chain of reasoning already presented in this article led McBurney, of New York, to adopt the use of rubber gloves. His gloves are prepared by washing them with soap and water to which a little aqua ammoniæ has been added. They are then boiled for fifteen minutes in a one per cent sodium carbonate solution and laid in the centre of a sterilized towel. The towel is folded over the gloves and not opened until the operator and his assistants are ready to

put them on. If the dry hands are rubbed with dry sterilized starch, the gloves can be drawn on with ease, even if their interior is moist. If the hand is moistened with glycerin or lubrichondrin, wet gloves may be easily drawn on. Filled with any sterile fluid, the gloves permit the ready entrance of the hand. If the latter method of putting them on is adopted, the hands must be previously as thoroughly disinfected as they would be if gloves were not going to be worn. If the hands are not disinfected, and the accident of tearing or puncturing the gloves occurs during the operation, the wound will most likely become infected, because such accidents may occur without being recognized in time to prevent infection. Previous disinfection of the hands is most important to the operator who has just adopted the use of the gloves, for, on account of not being accustomed to their use, tears and punctures are more likely to occur. When one has become accustomed to gloves the probability of such accidents occurring is slight; but, unless want of time forbids, the hands should always be as thoroughly disinfected as possible. Inasmuch as rubber gloves can be boiled, they can be rendered absolutely free from germs; and as they are non-absorbent, they must remain so, unless they come in contact with septic material. It is claimed that they are impermeable to bacteria, and, if occasion demands, a surgeon having a suppurating lesion upon his hand may operate without danger to the patient from this source, provided tearing or puncturing of the gloves does not occur.

To the army surgeon rubber gloves are a great aid in securing asepsis. On account of the varied duties incident to his office, his hands are not infrequently rough, and there is therefore greater difficulty in disinfecting them. He may be compelled to operate continuously for a number of hours, and may not have time for prolonged disinfection of his hands; and even if he has the time, the repeated scrubbing and immersion in disinfecting solutions might greatly irritate them.

At first there is some difficulty in manipulating instruments, ligatures, etc., but with constant use this is soon overcome; and it is claimed that one wearing rubber gloves can easily recognize adhesions, slight differences of consistency, irregularities of surface, or feel a feeble pulse. Those who have adopted their use are most emphatic in their praise.

The conclusion is that rubber gloves are of great service to the surgeon and enable him to more certainly obtain aseptic results, but that no other form of glove is of material use.

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### DISEASES OF CHILDREN.

**Analgesics, Use of, in Stomatitis in Children.**—Göppert<sup>1</sup> has used two new preparations—aneson (a solution of acetone chloroform) and orthoform—in treating 20 cases of severe stomatitis, in which the pain was severe enough to interfere with the patient's taking food. Both drugs relieved the pain so well and so quickly that the children were able to take food well, and even to gain in weight during the height of the stomatitis. The course and duration of the disease itself were in no way modified. There is little choice between the two preparations, orthoform being somewhat more easily applied but having a more disagreeable taste than aneson.

**Asphyxia Neonatorum.**—In an editorial<sup>2</sup> are found some remarks on a "Rational Method of Relieving Asphyxia in the Newly Born Infant." This method consists in exposing the maternal surface of the placenta to the air before the cord is cut, in order that the blood of the infant may be aerated thereby. The writer of the article had used this procedure in several instances with success, and was led to believe it the only simple and rational one available. The editor does not feel prepared to indorse this method, and questions whether the same result would not have been obtained by cutting the cord and thus insuring a slight amount of direct hemorrhage. It not infrequently happens, when the placenta is expelled with or shortly after the child in premature or precipitate birth, that death of the new-born results as a direct result of hemorrhage from the placenta.

**Association of Microbes in Diphtheria in their Relation to Serum Therapy.**—Luigi Concetti<sup>3</sup> says that the exceptional gravity which an association of microbes may impart to diphtheria depends upon several causes: 1. The two or the three associated microbes, instead of attenuating each other's strength, seem to cause an accumulation of their combined noxious properties. 2. In the majority of cases they recipro-



cally excite their virulence as well as their toxicity. 3. The toxins alone of these micro-organisms possess the property of increasing the pathogenic powers of other bacteria and of their toxic products. 4. In many cases the Löffler bacillus prepares the ground for the reception of a secondary infection, whether local or general. 5. On the other hand, a streptococcic or staphylococcic septicemia, by destroying the defensive power of the leucocytes, may allow of an invasion of the organism by the Löffler bacillus. 6. In any case the infections weaken the organism and diminish its resistance to concomitant infections; clinical experience daily demonstrates the truth of this statement, and Roux's experiments have further confirmed it.

Some authorities hold that the antidiphtheritic serum may, in the cases of associated microbes, increase the virulence of the secondary microbes and the gravity of the clinical manifestations. Concetti not only disagrees with them, but holds that their theory is a very dangerous one, because the number of pure cases of diphtheria is extremely limited. If it were true it would enormously diminish the number of cases in which the serum could be used in large doses, and we should even be afraid of aggravating the disease by means of the serum. He is strongly convinced, on the contrary, that in cases of associated bacteria we should administer *even larger doses of the serum than usual*. The more energetic the treatment the more efficacious will be the action of the serum therapy, not only against the diphtheria itself, but also against the secondary infections. Daily practice confirms him in his opinion. If it were true that the association of bacteria constituted a contraindication to serum therapy, the mortality would have been increased since it came into use, while all the statistics prove an enormous diminution in the death lists from diphtheria. Tuberculosis even is not a contraindication to the use of the serum. In three cases of diphtheria in tuberculous patients the author noted a lowering of the temperature during the time that the patients were under the influence of the serum.

**Belladonna in the Treatment of Broncho-pneumonia.**—J. A. Coutts<sup>27</sup> believes that he has found a remedy in belladonna that serves to diminish the mortality in this disease. The explanations of its mode of action are not satisfactory to the author, but he thinks the good effects may be accounted for by the lessening of the secretion into the bronchial tubes and pulmonary tissues. With belladonna as the sole drug administered in his cases, there has been no need for steam tents, oxygen inhalations, unlimited stimulations, dry cupping, and all the rest of the former varied and trying treatment. As regards mortality, his experience with the drug is everything that is favorable. Not only was the mortality diminished, but the dyspnea was relieved in most cases, and the duration of the attacks have been shortened from several weeks to several days. There was noticed some irritability and flushing of the skin, which were easily cured by lessening the dose. Larger doses than usually prescribed were used, the

author giving one-quarter grain of the extract (Br. P.) every three or four hours. The same dose was given to an infant a few weeks old as to a child 6 or 7 years old.

**Cholera Infantum.**—Grosvenor Trowbridge,<sup>23</sup> during a period of fifteen months ending October 1, 1897, treated 321 cases of cholera infantum. They were all typical cases of the disease and all occurred among the poorer classes. Twenty cases were already comatose when he first saw them. The number of deaths was 29. The treatment was as follows: In 227 cases the powders of salol, pepsin, pancreatin, and the like, in conjunction with the chalk mixture, were given, with a result of 17 deaths and 210 recoveries. Sixty-nine cases were treated with Dr. Hare's formula of creasote, bismuth, etc., with 7 deaths and 62 recoveries, and 25 were given Dr. Hare's second formula, with the result of 5 deaths and 20 recoveries. The diet and other necessary measures in the way of stimulation, baths, and the like were employed in all cases. The author says that he does not hope to advance anything especially new in the treatment of cholera infantum, but, having had the opportunity to see so many cases, he believes the following points to be of great importance in the care of them: (1) If the child is not too weak, a thorough cleansing of the bowels by means of a laxative and flushing; (2) stimulation in every case; (3) carefully regulated feeding; (4) medication should contain an antiseptic to counteract the poison of the disease. Dr. Hare's prescriptions referred to above are the following:

- I.
- |                      |            |
|----------------------|------------|
| Acidi salicylici,    |            |
| Sodii biboratis..... | āā gr. xv. |
| Aquæ .....           | ℥ xl.      |
- M. et adde:
- |                               |       |
|-------------------------------|-------|
| Tincturæ aurantii corticis... | ℥ v.  |
| Glycerinæ.....                | ℥ xv. |
- II.
- |                              |         |
|------------------------------|---------|
| Bismuthi subnitratis.....    | gr. vi. |
| Tincturæ opii deodoratæ..... | ℥ i.    |
| Syrupi.....                  | ℥ xx.   |
| Misturæ cretæ.....           | 3 i.    |
- Creasote Mixture.
- |                           |                  |
|---------------------------|------------------|
| Creasoti .....            | ℥ ⅛.             |
| Bismuthi subnitratis..... | gr. iiij.        |
| Mucilaginis acaciæ.....   | ℥ xx.            |
| Aquæ cinnamomi.....       | q s. ad fl. ⅓ i. |

A favorite prescription of the author, and one which he has used with the best results, is the following for a child from 10 to 18 months old, the quantities to be increased proportionately:

- |                            |           |
|----------------------------|-----------|
| Salol...                   | gr. iiij. |
| Pepsin (pure).....         | gr. ijss. |
| Pancreatin (pure).....     | gr. ijss. |
| Bismuthi subnitratis.....  | gr. iiij. |
| Extracti nucis vomicæ..... | gr. ½     |
| Sodii bicarbonatis.....    | gr. vi.   |
| Ginger, powd.....          | gr. iss.  |

M. et div. in chart No. xii. One every two hours, alternating with this about 3 ss. of mistura cretæ.

**Cleft Palate.**—In describing his method of operative treatment of this condition, Edmund Owen<sup>3</sup> makes a special point of his treatment when staphylococci infection of the wound has occurred and threatens to undo the surgeon's handiwork. He allows the infective disease to run its course, as it cannot be stopped. A fortnight after the operation, when the swollen edges of the cleft begin to look bright and clean, he puts the child under chloroform, freshens up the marginal granulations, brings the edges of the flaps together once more with wire sutures. To bring the edges together without tension he introduces a raspatory once more by the lateral incisions and freely raises the muco-periosteal flaps. He has secured as good a result in this way as if primary union had occurred.

**Congenital Tuberculosis.**—H. McC. Johnson<sup>30</sup> reports a case of tuberculosis in a child at birth whose mother had tuberculosis of the bladder. The child was emaciated, shrivelled, small, and so weak it could not nurse. It rapidly emaciated more, made efforts at coughing, and died of collapse during a profuse pulmonary hemorrhage. At autopsy the lungs and mesenteric glands showed evidences of a tubercular process. The placenta showed pathological changes similar to those found in tubercular lesions.

**Coxa Vara.**—E. Muirhead Little<sup>3</sup> sums up an article on the subject as follows: 1. Coxa vara in adolescents may be produced by the action of gravity on bones softened by any disease. 2. In children it is due, when present, to rickets. 3. Some cases of apparent coxa vara are cases of curvature of the upper part of the diaphysis of the femur. 4. Others are cases of dislocation of the hip. 5. Others of green-stick fracture of the cervix femoris. 6. Röntgen's rays afford the surest means of diagnosis that we at present possess and should always be employed. 7. Subtrochanteric osteotomy is the best treatment to adopt in true coxa vara, or in curvature of the shaft simulating this condition. If, however, the case be seen before the bones have hardened, weight extension should be used.

**Diaphragmatic Hernia, Congenital.**—Schwalbe<sup>4</sup> distinguishes between true and spurious cases of diaphragmatic hernia, according as the prolapsed abdominal viscera are covered by a hernial sac or not. He has seen one case of the true and three of the false variety. In the former the hernia occurred on the left side, the sac being composed of parietal peritoneum and pleura. These cases are not very common, and are rather more frequent on the right than on the left side. The false cases, on the other hand, whether congenital or traumatic, occur much more frequently on the left than on the right side. The congenital cases must be looked upon as due to a lack of development occurring very early in embryonal life. In deciding whether a new-born baby with a diaphragmatic hernia is viable or not, great care is necessary, because there are cases on record which have lived to reach adult life. Naturally, when the hernia is so large that one or both lungs are greatly compressed, life is not possible.

**Diphtheria.**—Henri Méry,<sup>6</sup> treating this subject from both a clinical and bacteriological standpoint, says that by association of microbes he means not merely their juxtaposition and coexistence in the same individual, but their common combined pathogenic action upon the organism. These associations may occur at the onset of the principal disease, causing a mixed infection, or during the development of this disease, causing a superadded infection. It is easy to confound coexistence and association. Even proof of the virulence of the germ does not prove its pathogenic action, because we know that during perfect health virulent streptococci and pneumococci may exist in the mouth. On the other hand, the absence of specific characteristics in their effect upon the organism, in lesions and in the reactions caused, make the clinical types corresponding to these associations very difficult of demonstration. The pathogenic rôle of associated bacteria in diphtheria and its importance have been established by experiments, by anatomo-pathological data, by clinical observations and clinical bacteriology. Dr. Méry describes the experiments made by various investigators. As to the methods of reaching a bacteriological diagnosis of associations, they are the same as in the case of diphtheria, viz.: *Direct examination of the false membranes, cultures, macroscopic and microscopic observations, and research into the virulence of the micro-organisms.* Cultures upon serum have been found to be the best. Macroscopically the colonies may escape sight, especially if the serum be thick; on the other hand, the serum does not always permit of the growth of the streptococci, owing to its quality, which varies according to the animal from which it is derived, or perhaps to the dryness of its surface. *Research into the virulence of the bacilli* would seem to be an ideal method of diagnosing strepto-diphtheria, but it is not always a practical nor a rapid method of procedure, and the virulence exerted in an animal is not always in harmony with that exerted on man. Finally, we may find virulent streptococci in the throat in a normal condition of the patient, or with an angina without its playing any part in the latter.

*Direct examination* of the false membranes appears to the author to be of more value. It may be made from sections or from scrapings. The former are the more interesting, as they show the number and situation of the bacilli and permit of a more thorough study, but where a rapid diagnosis is to be reached the latter is preferable. No one of these methods of examination will give the desired accurate information, but all should be used; while bacteriology cannot give us the pathognomonic characteristics of all the varieties of associated bacteria, it furnishes valuable data which, joined to clinical observation, will enable us to make our diagnosis.

*The clinical symptoms* of the association of microbes have been described by MM. Grancher, Sevestre, and Barbier. The one best known is that of the streptococcus giving strepto-diphtheria. The onset is abrupt, often ushered in by the violent



chill characteristic of streptococcic infections, and the temperature may go up to 40° C. (104° F.). The false membranes are thick, tomentose, and flabby, of a dirty gray or brown color, some forming a putrid magma; there is an ichorous discharge and a special fetid odor to the breath. The throat has a characteristic ulcerated appearance, the false membranes seeming to rest upon the ulcers; on the portions of mucous membrane where there are no false membranes there is *redness*, which is more marked than in pure diphtheria; there is sometimes marked edema of the uvula and pillars of the fauces. In the nose we find a sero-sanguineous coryza, with ulcerations around the nostrils and erysipelatous redness of the skin. The larynx and trachea also give special symptoms: pus flows from the tube or the canula, and there is often broncho-pneumonia. The ganglia are always surrounded by an edematous infiltration and are painful to pressure. In grave cases they can no longer be distinguished, so abundant and thick is the infiltration. The neck may be enormously swollen. As to the general phenomena, the fever is higher than in simple diphtheria, the face pale and swollen, there is great prostration, and we have manifestations of general septicemia or pyohemia.

We may divide the clinical forms of associated diphtheria into two chief groups, according to whether its manifestations are mainly local or general. In the *localized associated form* of strepto-diphtheria we have the symptoms given above, but without general phenomena. In the *generalized forms* we have, first, the *acute and subacute infectious strepto-diphtheria* of M. Sevestre. The local symptoms given above are present. From the onset there are grave general conditions—pallor, great prostration, considerable albuminuria, fetid diarrhea, small and rapid pulse, epistaxis, purpura, and sometimes erythematous eruptions. The disease may develop in twenty-four or forty-eight hours with every appearance of septicemia. A slower pyohemic variety may be seen, with suppuration of the ganglia and joints or otitis. Sevestre describes an *infectious strepto-diphtheria with a slow course*, the angina having a strepto-diphtheritic character from the first, but the septic accidents occurring more tardily. Barbier distinguishes three forms of grave associations: (1) Associations with a predominance of diphtheritic symptoms; (2) associations with a predominance of septic symptoms; (3) infections with simultaneous grave diphtheritic and septic symptoms.

The clinical characteristics of associations other than the streptococcic have as yet not been thoroughly studied. *Staphylo-diphtheria* is less grave in its nature. The false membranes are pultaceous and recall the diphtheroid plaques of impetiginous stomatitis. In the associations with the *coliform bacillus* the false membranes are very thick, very penetrating, and possess a nauseous odor. The general symptoms resemble those of infectious strepto-diphtheria. Association with the *proteus* gives rise to gangrene. The treatment of these associated types will depend upon which form of infection is the most

prominent. The action of Roux's serum on the diphtheritic infection is not altered by the association, but a larger quantity of it should be given because of the greater gravity of the affection. When the false membranes become typical of streptococcus infection the serum will no longer give any result. We can use special antistreptococcic serum, Marmorek's serum having given interesting results, which are, however, very variable as to a cure, or we may resort to the local use of antiseptics. Care must be taken not to injure the mucosa. Roux prefers boiled water and Labarraque's solution. Of course we must in every way endeavor to improve the condition of the heart and the general condition.

Adolph Rupp<sup>6</sup> discusses the practical view of antitoxin and diphtheria in private practice. He writes that scientists have given us the facts of the Klebs-Löffler bacillus and other cocci to think of, and these low forms of life have dislocated our ideas of diphtheria, true and false. But scientists are not a unit as to the significance of the Klebs-Löffler bacillus for diphtheria and its relationships to the other bacteria which are granted an active participation in the local process of this clinical disease. Concerning their diagnosis of this disease as defined by themselves, scientists do not base their diagnosis on the number of Klebs-Löffler bacilli that may be present, absolutely or comparatively, over against the number of cocci and bacilli that may be present in clinically true or false diphtheria. The mere presence of the Klebs-Löffler bacilli demonstrably qualifies their diagnosis. Incongruities of quantitative facts are readily explained away by such terms as mixed infections. When an apparently bad case of clinical diphtheria is met with and no Klebs-Löffler bacilli are detected, we are assured that the case is false diphtheria. And if a case of clinical diphtheria develops a membrane that persists longer than one or two or three weeks, even though antitoxin has been given *lege artis* and even though the Klebs-Löffler bacilli are detected, the scientific diagnostician tells us the case is one of mixed infection, and that the persistence of the membrane is due to various cocci and other bacteria than the Klebs-Löffler form. Baumgarten claimed that streptococci are the true cause of diphtheria, they being always present in clinical true diphtheria, and that the Klebs-Löffler bacilli are only of secondary or accidental importance in this disease, because they are not invariably present. He strengthened his position by saying that streptococci are not found in healthy mouths and throats, but that Klebs-Löffler bacilli are. Now Dr. Paul Hilbert tells us he was successful in finding, in all cases examined by him, the specially reputed pathogenetic long streptococci in the crypts of tonsils of healthy people. In the great majority of cases of clinically true diphtheria the Klebs-Löffler bacilli are found. Other information than the presence of Klebs-Löffler bacilli is not furnished by the health board. Now, if Hilbert is right in his contention and Baumgarten in his, all these cases of clinical diphtheria are cases of mixed infection. Another lesson that

Hilbert tries to enforce is that streptococci alone are not bad, but when Klebs-Löffler bacilli fall in with them a bitter fight ensues, which can be checked by the administration of antitoxin. From his personal experience the author concludes as follows: 1. Patients treated without antitoxin did just as well and were not afflicted with the minor inconveniences that may be attributed to antitoxin. 2. In the croupous cases it exerted no beneficial or inhibitory influence on the progress of the croup. 3. The antitoxin did not seem to cause the pseudo-membranes in the throat to disappear sooner than would have been the case had no antitoxin been given.

C. Hampson Jones,' in discussing the work of the Health Department of Baltimore in regard to diphtheria, states that one man was detailed to examine the throats of every one in a house in which this disease appeared. Children were not allowed to return to school until the house had been disinfected and their throats examined. The author believes strongly in the curative and preventive qualities of antitoxin.

William Royal Stokes,' also of the Baltimore Health Department, writes of the management of diphtheria from a public standpoint. The result from the use of antitoxin receives special attention. In 387 cases which were considered diphtheria by the physicians who applied for antitoxin, 47 deaths occurred, a mortality of 12.14 per cent. In 288 of these cases diphtheria bacilli were demonstrated and only 30 cases died, a mortality of 10.41 per cent. In 53 cases of laryngeal diphtheria 20 deaths occurred, a mortality of 37.73 per cent. Out of 256 cases immunized in infected houses, a subsequent history showed that only 2 cases developed diphtheria. Antitoxin was little used in Baltimore in 1896, and the mortality from diphtheria in this year was 51.87 per cent.

**Diphtherial Paralysis, Pathology of.**—The nature of the changes found in diphtheria are described by Frederick E. Batten.<sup>8</sup> 1. *Nissl's Method.*—The spinal cord in the cervical, dorsal, and lumbar region, and the posterior root ganglia, were examined by this method. No change could be demonstrated in the cells either of the anterior horn or of the posterior root ganglia, the granules and the prolongations of the cells of the anterior horn appearing perfectly normal in size and distribution. 2. *Marchi's Method.*—The character of the changes found by this method was as follows: (a) In the spinal cord the anterior root fibres, as they pass through the white matter, are seen to have undergone degeneration, as manifested by the number of black granules in their course. As they enter the gray matter these fibres are no longer collected in bundles; they become scattered and pass in all directions between the cells of the anterior horn. In the posterior region of the cord the process is not nearly so easy to trace, owing to the interstitial fat that is normally present in this region. The number of degenerated fibres is, however, greater in the postero-external column than in the postero-internal. The vessels in the gray matter are engorged. (b) The spinal roots: (1) In the

anterior roots the myelin sheath of the nerve can be seen broken up into granular masses composed of very fine globules of fat. Some of these are fused together and form larger masses; this appearance seems to be similar to that found in a peripheral nerve after section. (2) In the posterior roots exactly the same change is found, only usually less marked than in the anterior roots. (c) The posterior root ganglia: No change could be found in the cells of these ganglia, but the fibres on both sides of the ganglion exhibit characteristic degeneration of the nerve fibres. (d) The peripheral nerves: The changes found in the main trunks of the peripheral nerves and in the fine branches present the following characteristics: The nerve fibre is swollen up and the myelin sheath appears to be filled with fine fat globules. In certain spots these have fused together to form larger masses of fat; in the later stage the myelin seems to be broken up into oval masses which contain globules of various sizes. The degeneration does not seem to extend along the whole length of one fibre at the same time. The conclusions of the author are: 1. A lesion of the anterior roots, similar to that observed after section of a nerve; this lesion is constant. 2. The alteration of the anterior roots has always been in correspondence with the paralysis observed during life. 3. The degree of alteration in the roots has always been in correspondence with the duration of the paralysis. 4. The posterior roots have never presented this lesion. 5. The alteration in the roots is secondary to the changes in the spinal cord. 6. The lesion in the spinal cord is probably inflammatory in nature, affecting the gray matter, and is both interstitial and parenchymatous. Finally, it is probable that the dominant lesion in diphtherial paralysis is a parenchymatous degeneration of the myelin sheath of the nerves, and that this degeneration affects both motor and sensory fibres alike.

G. Sims Woodhead<sup>9</sup> gives statistics which would seem to indicate that the cardiac paralyses occur at a comparative early date, the bulk taking place between the fifth and tenth days. The author thinks we have evidence of the primary affection of the nerve cells or of a direct action of the poison in the muscular tissue in the fact that cardiac paralyses occur relatively at a much earlier period than the other forms of paralyses. The affection of the cells of the vasomotor centres, and perhaps also of the ganglia of the heart, is much more important in the regulation of the heart, which is constant in action, than in the case of the other muscles, which in most cases are practically at rest, and in which therefore the demands of both the motor cells and muscular tissue itself are comparatively slight. In a discussion following the reading of this paper, Dr. F. W. Mott said that in the examination of nervous and muscular tissues he had generally found fatty degeneration early and late of the muscles and sometimes Wallerian degeneration of the nerves. He had observed extreme early fatty degeneration of the heart, and yet no degeneration of the vagus nerve. He



was of opinion that probably the poison acted on the whole neuron, especially upon the terminal arborizations of the dendron and the end plates. Dr. Baginsky was of opinion that early antitoxin treatment was of the greatest value in diminishing the number of cases of paralysis in diphtheria. Drs. E. W. Goodall and Woodhead concurred in this opinion.

**Diphtheritic Septicemia and its Causes.**—F. Cuoghi Costantini<sup>24</sup> thus sums up his report of work done in the clinic of Luigi Concetti: 1. In pure diphtheritic infection the Löffler bacillus never penetrates into the blood, but remains localized in certain spots, where it elaborates the toxic products that secondarily poison the organism. 2. Polynuclear leucocytes constitute the defence of the organism against the invasion of the Löffler bacillus. 3. When the diphtheritic infection is accompanied by streptococcic or staphylococcic infections the defensive power of the leucocytes is diminished or annulled and a more or less marked diphtheritic septicemia may then be produced. 4. This invasion appears to be due to a special poison secreted by the streptococci or the staphylococci and called *leucocidin*, which acts upon the vitality and the mobility of the leucocytes. 5. Besides the association of microbes mentioned, other substances are capable of causing diphtheritic septicemia, such as atropine, pilocarpine, and sodium chloride. 6. The new conceptions as to diphtheritic septicemia lead to a greater appreciation of the importance of microbic associations and explain the fact of the occurrence of septicemia and of its gravity.

**Eczema, Treatment of.**—Saalfeld<sup>10</sup> recommends cold or warm applications, according to the idiosyncrasy of the patient, and uses a solution of lead acetate or of boric acid, or of the two combined. Solutions of resorcin, zinc sulphate, or thymol are also valuable, and applications of chamomyle or peppermint tea have the advantage of being harmless in the hands of children. The poultices should not be covered with rubber tissue. If this method fail to cure a weeping eczema, powders must be resorted to, such as talcum, rice or potato flour, zinc oxide, or boric acid. Carbolic acid, cocaine, or menthol may be added to stop the itching, provided that the skin is not too susceptible. Cases with much secretion and crust formation must be treated with oil, the powder or ointment being applied over a layer of oil. In chronic squamous eczema stimulating substances should be applied: the various tar preparations are useful for this purpose, being used in mild strength at first. In alcoholic solution oil of cade has proved useful in acute papular or vesicular eczema with much secretion. When using this treatment the urine must be carefully watched, as also in cases in which pyrogallie acid or chrysarobin is given. Caustic potash is of value in old infiltrated cases, but must be used with great care. The general hygienic and tonic treatment is as valuable as the local treatment in these cases. Arsenic gives excellent results in eczemas of long standing.

**Esophagus, Coins in.**—Faludy<sup>1</sup> observed 2 cases, in 1 of

which the diagnosis was facilitated by the use of the Röntgen rays. The patient was a boy 2 years old, who swallowed a coin five days before he was brought for treatment, being unable to swallow any but fluid food. The rays demonstrated the presence of the coin in the esophagus at the level of the upper sternal border, with its picture side toward the front and a little to the right. It was removed by means of Graefe's coin catcher and proved to be of copper, 22 millimetres wide and 3 millimetres thick. The second case occurred in a 3-year-old boy who had played with caustic two months before, and since that time took fluids only and grew thin. A sound encountered an obstacle in the lower third of the esophagus. This was thought to be a stricture caused by the swallowing of some of the caustic. The next time that the sound was passed the obstacle had changed its location, and with the withdrawal of the sound there appeared a coin which had become black from long presence in the esophagus. It had evidently been swallowed soon after the child had played with the caustic, which had not entered the esophagus. Recovery was complete and immediate.

**Head-nodding and Head-rotation usually Associated with Nystagmus in Very Young Children.**—Charles J. Aldrich<sup>11</sup> prefers the above title of a more correct description of a peculiar syndrome of the pathological basis of which we are at present ignorant. The disorder usually occurs between the ages of 6 and 12 months, and the records show a great preponderance of females attacked. Gyral movements are most frequent, although a combination or alternation of the nodding with gyral movements is common. The movements are smooth, easy, regular, and rhythmical, and may stop during sleep, in the recumbent position, and (Mills) when the eyes are covered. The nystagmus may be monocular or binocular, vertical, horizontal, rotary, or mixed and alternating—one eye presenting one variety, its fellow another. The nystagmus usually precedes the development of the head movements, and often persists long after the latter have disappeared, and may recur without their association. Strabismus may be associated with the disorder. Characteristic changes in the pupil and optic discs fail to occur as a rule, nor is the vision necessarily at fault. The etiology is obscure. Most cases tend to spontaneous cure in six weeks to three months, but many cases have a tendency to relapse if the child suffer any disturbance in health. The treatment consists in nerve rest by bromides, rest in the recumbent position, tonics, correction of digestive and other disturbances.

**Hernia.**—Léon Bonnet<sup>12</sup> writes of the radical cure of non-strangulated hernia in very young children. He does not think that the time-honored custom of using a bandage results so frequently in a cure as many practitioners believe. M. Broca has operated upon more than 1,200 children, whose ages range from a few days to 15 years. Nearly all of them had worn bandages, some of them continuously. The radical

operation has been accused of being dangerous, but of the 600 children under 6 years of age and the 600 between 6 and 15 operated upon by Broca, together with 135 whose histories are given by Bonnet, only 1 died of peritonitis. The only valid objection consists in the danger of broncho-pneumonia to which young patients are exposed, and this can be avoided by proper care. Bonnet divides the children into two categories: 1. *Those younger than 15 or 18 months.* If the hernia is small the only rational treatment is a bandage. It should be of rubber with an air cushion. It is during the first year of life that spontaneous obliteration of the inguinal canal is most likely to occur, and the surgeon should endeavor to assist Nature. Strangulation is not frequent at this age, but is not unknown. A bilateral bandage should be used, for it does not slip about as does the unilateral; moreover, the persistence of the canal is often bilateral, although sometimes perceptible on one side only, so that it is best to kill two birds with one stone. The bandage should be worn night and day, and when necessary to remove it for the child's daily bath the ring should be pressed down so that the hernia does not get a chance to protrude again. The hygiene and feeding of the child must be carefully attended to. Should the hernia increase or strangulation threaten, operation will have to be resorted to. 2. *Children over 18 months.* Toward the age of 2 years the bandage should no longer be used; if it have not succeeded in curing the hernia a radical operation must be performed. Contraindications consist in general debility of the patient (unless this condition be a result of the hernia), in acute affections, as bronchitis, pertussis, adenopathies, tracheo-bronchitis, etc., or chronic multiple adenitis and suppurations. Bonnet describes M. Broca's methods of operation, and reports the cases of 135 children, upon whom 149 operations were performed. The youngest was 4 months old, the oldest 2 years. Four died: 1 4 months old, nineteen days after the operation, of diarrhea and athrepsia; the 3 others of broncho-pneumonia, four, five, and eleven days after the intervention. There were no relapses.

**Hydrocephalus Externus, Congenital.**—Bokay<sup>1</sup> reports a case occurring in a rachitic child of 9 months whose head had been steadily enlarging since birth. The circumference of the head was 60 centimetres, the biparietal diameter  $14\frac{1}{2}$  centimetres. Death resulted from broncho-pneumonia and enteritis. The diagnosis made during life was internal hydrocephalus. At the autopsy half a litre of fluid was found beneath the dura, which was thickened, as was the pia. The brain was smaller than normal, but well developed. The lateral ventricles were very slightly dilated, the foramen of Monro decidedly so. Consequently this case presented a slight internal hydrocephalus together with a marked external one, and is to be looked upon as due to an inflammation of the meninges occurring during intrauterine life. The only symptom which seems to be of differential diagnostic value is the fact that in external hydrocephalus the cranium is enlarged equally in all directions.

**Ophthalmia Neonatorum, Prophylaxis of.**—P. C. Jamison,<sup>28</sup> after calling attention to the great importance of the subject, summarizes the injuries to the cornea from purulent conjunctivitis as follows: 1. Total destruction of the cornea, with complication necessitating enucleation. 2. Total destruction of the cornea, rendering the individual blind from dense opacity. 3. Partial destruction of the cornea, leaving localized opacities but not depriving the individual altogether of vision. 4. Partial destruction of the cornea, in which no opacity of the organ is visible except with close inspection and artificial illumination, which reveals an irregular refractive surface which deprives the patient of normal vision.

All these may be regarded as serious results, and the latter are mentioned because the tendency is to feel that as the percentage of these cases (if treated) which result in total destruction is small, prophylaxis is unnecessary. That may be true, but the proportion of cases which result in the three latter conditions is quite large, if the number of corneal opacities and irregularities from this source noticed in ophthalmological work may be taken as an index. It will be conceded, then, that any change in structure or contour of the cornea, short of total destruction, which would interfere with the normal vision of the patient, should be regarded as a matter of serious import, and if Credé's method is capable of preventing those conditions it is worthy of conscientious observance. Now as to some of the objections cited in contradiction of the routine use of prophylaxis for this disease.

1. There being no external evidence of specific discharge from the birth canal before or after labor, why subject the patient to possibly unnecessary medication? In this connection the first prominent fact we meet is the statement by the genito-urinary surgeon that gonorrheal infection can exist and is sometimes present without any coexisting discharge or external evidence. That gonococci can remain dormant in some small crypt without external symptoms seems to be an undoubted fact; and as illustrative of the danger of relying upon external evidence as a means of deciding as to whether prophylaxis should be used in a given case, one has but to point to those in which conditions such as would satisfy the most conscientious as to absolute immunity from infection being present were sometimes productive of virulent types of gonorrheal ophthalmia. These exceptional cases in which there are no external symptoms, it is true, do not occur every day in practice, but when they appear it is usually at most unexpected periods, and they are the source of much worry and anxiety to the doctor and possible disaster to the patient. In private practice questions bearing on this condition are likely to be resented. Statements obtained are not always correct. Efforts to obtain a culture before or after birth are often impracticable, and we have already seen that external symptoms are not to be relied upon, so that it would seem there is no absolute safeguard against ophthalmia neonatorum other than systematic



prophylaxis, and to rely upon external appearances and clinical history for immunity from gonorrheal infection allows a possibility of a subsequent attack of ophthalmia neonatorum.

2. There being no evidence of infection in infants' eyes at birth, is it a necessity that we put the patient under prophylactic medication before such symptoms arise?

When we call to memory that the period of incubation of the gonococcus in gonorrheal conjunctivitis is forty-eight hours, but frequently longer—sometimes three to five days—and that during this period the eye may present no more symptoms of irritation than is natural to the new-born, but quite rapidly assume all the alarming symptoms of this disease; that at one visit of the attendant the eye may be positively unsuspecting, and at the next visit may have assumed a condition which renders it unrecognizable, presenting a picture of edematous inflammation which may threaten alone to strangle the sources of nutrition to the cornea and render it an easy prey to the ravages of the virulent gonococci—it can then be seen how futile it is to procrastinate until evidences of infection spring up before adopting prophylaxis, since in most cases of delay the disease will be too well rooted to be successfully contended with.

3. The objection to nitrate of silver itself as a remedial agent. The objection which one hears most frequently is the possibility of the introduction of a ten-grain solution into the eye being productive of minute opacities of the cornea.

This, however, cannot be sustained by clinical experience, if the statement by some physicians of large experience who have been using it in our clinics and in private practice for the last twenty-five years is to be taken as an index. By them it has been used and is still being used in varied solution, and, as far as the writer can learn, in cases in which there was no tendency of the disease itself to produce ulceration and consequent opacity, none has been noticed.

Perhaps the clearest proof that nitrate of silver as used in Credé's method is not productive of corneal opacity or minute ulcer is the contrast between two clinical pictures. Glance first at that of an ulcerative process of the cornea in its incipency, for this must be the antecedent to opacity or irregularity, and we have an eye which is the seat of the greatest local disturbance—pain, inflammation, photophobia, lacrymation for an indefinite period. This will occur even if the minutest foreign body lodges on the cornea; but, on the other hand, after the instillation of one or two drops of a ten-grain solution of nitrate of silver it is a simple picture of slight irritation, which passes away within from four to ten hours, and it is hardly reasonable to suppose that an ulcerative process could take place within so short a period and with such mild symptomatology. Moreover, investigations past and recent seem to point to nitrate of silver as being the ideal agent in the prophylaxis of these cases. Glancing at its therapeutic capabilities, we see such as are of great value in this disease and not com-

mon to any other agent. As a causative feature in this disease we have a virulent type of bacteria. Nitrate of silver is capable of destroying them in a solution as weak as one-half grain to the ounce. There is also present in this disease an albuminous exudate which forms the best possible nidus for the propagation and perpetuation of the germ, but nitrate of silver possesses the physical property of combining with the exudate, it coagulates the albumin, destroys the gonococcus, and renders the nidus of infection sterile.

The conjunctival sac and adjoining tissues are themselves permeated by infection in gonorrheal ophthalmia. Nitrate of silver again, by means of its affinity for albumin, has permeative properties of its own; it penetrates superficially the infected areas, and not only sterilizes the contents of the conjunctival sac, but so far as possible neutralizes the poison in the tissues of the sac itself. Again, danger to the surrounding structures may be brought about by the application of remedial agents whose tendency is to produce inflammation and subsequent cicatrization; nitrate of silver, however, obviates this danger in its own use by forming an albuminous protection on the surface of tissue, rendering the penetration superficial. Other agents may be slightly inflammatory in their nature; nitrate of silver, on the other hand, is markedly astringent and antiphlogistic. This combination of therapeutic capabilities is not possessed by any other agent, and, while it does not interdict prophylaxis by any other means, it points to nitrate of silver as being the most valuable agent.

4. The statement, so frequently heard, that Credé's method, while essential in hospital work, is unnecessary in private practice.

Gonorrhea, as we all know, is prevalent among both classes of people, and as gonorrheal ophthalmia is not infrequently met with in the least suspected cases, it would seem, if there were any urgency in advocating prophylaxis, it should be even greater in private practice, in which our responsibility is larger and the welfare of the patient possibly of more value to the community. True, in private practice it may be our good fortune to go many years without seeing or treating a case of ophthalmia neonatorum; it may be one's gratification to treat successfully the few that come across one's path; but if it is a question of what is our duty to the best interests of the patient, the community, and, as far as that is concerned, to ourselves, if the foregoing argument and reasoning are correct, it would all seem to point toward prophylaxis.

5. The comparatively small number of cases seen in individual practice, and the subsequent successful treatment of them, cannot be regarded as a contraindication to the general adoption of careful prophylaxis, as the aggregate number of cases of total and partial blindness resulting from this disease is large.

What is the best procedure in the practice of prophylaxis of ophthalmia neonatorum? Before birth, means should be em-

ployed to render the sterilization of the birth canal as complete as possible. At the time of birth the careful cleansing of the infant's eyes with a solution of twenty grains of boracic acid to the ounce should be practised, care having been taken to render sterile the surrounding portions of the orbit and also to make use of Credé's method, viz., the instillation of one drop of a solution of nitrate of silver, ten grains to the ounce, between the lids and upon the cornea. After birth, use some mild cleansing wash, preferably boracic acid, in solution of twenty grains to the ounce, three or four times daily; this is to be practised from five to six days after birth.

**Pemphigus Neonatorum.**—Luithlen<sup>13</sup> has studied the histology of this disease in two cases, and found the floor of the pemphigus vesicles made by the cells of the rete Malpighi, the roof by the horny layer of the epidermis. The corium showed no change except congestion of its blood vessels. Staphylococci were demonstrated in the vesicular contents, and a few within dilated lymph vessels of the corium. Staphylococci cultivated from similar cases by other observers have shown no biological or morphological difference from the staphylococcus pyogenes aureus. Almquist succeeded in producing a bullous (pemphigus) eruption by inoculating the organism into his arm, and looks upon it as the specific cause of pemphigus. In the majority of congenital cases sepsis of the mother is found to coexist. During the first few weeks of life the infection is probably carried by means of unclean instruments, clothes, and bathing apparatus. The disease must be differentiated from syphilitic pemphigus, herpes tonsurans, dermatitis exfoliativa, septic exanthemata, and scalds. In treating the disease bathing should be discontinued and the ruptured vesicles covered with ichthyol ointment. The rest of the body may be dusted with a mildly disinfectant powder. The history of the disease is discussed and a list of literature references is appended.

**Percentage Feeding, Practical Points in.**—William L. Baner<sup>14</sup> believes that percentage feeding is not receiving due recognition from the profession in general, because the subject has been burdened with mathematical niceties which complicate without giving increased accuracy, and also because physicians are not usually inclined to venture into anything which at all savors of mathematics. The author, in a previous paper, has proposed a method based upon very simple whole numbers, which a review of the standard analyses showed to be a fair working average. A careful consideration of the subject shows that the estimation of small differences in the analyses made by different chemists adds absolutely nothing to the accuracy of results. A few adherents of the more complicated procedures have insisted on the theoretically greater accuracy of using certain fractions, but the author found that the end results of the complicated methods are practically identical with his own. Some of the complicated methods actually show very considerable errors in the fundamental

principles. An instance of this recently appeared in the *Boston Medical and Surgical Journal* for September 22, 1898, in a paper by Dr. J. L. Morse, and in Dr. Rotch's "Pediatrics." The methods of calculation proposed by Drs. Morse and Rotch are based on the idea that if a given quantity of milk containing 4 per cent of fat is set for six hours all the fat will rise to the top quarter, which will then be 10 per cent cream, the under three quarters being a solution of proteids and sugar without any fat to disturb the calculation. As a matter of fact, the under milk actually contains 2 per cent of fat, and not two-tenths per cent as stated.

In thinking of percentage mixtures it is necessary to have in mind some simple standard of average good cow's milk. An examination of the various recognized analyses shows that the number *four* will fairly represent the percentage of each of the three constituents of milk with which we have to deal. This is not quite exact as regards sugar, which somewhat exceeds 4 per cent, but it is decidedly easier to allow for the difference when we come to actually put the sugar into the bottle than to carry fractions through the entire calculation. With unusually rich milk, too, some allowance may perhaps be made for the extra fat, but this is so rare as to scarcely need mentioning. Milk, then, is water holding in suspension or solution 4 per cent of proteids, 4 per cent of fat, and a little over 4 per cent of sugar. Cream is simply whole milk into which a certain amount of *extra fat* has risen. Thus, ordinary 16 per cent gravity cream is whole milk plus 12 per cent of extra fat, etc., the *extra fat* in any cream being 4 per cent less than the total fat contents. The general principle upon which percentage mixtures are figured is simply this: As milk and cream contain practically equal proteids, it is the *quantity* introduced into the mixture which establishes the proteid percentage, and the *quality* which establishes the fat. For example, a mixture of 1 part milk and 3 parts water gives 1 per cent of proteids. One part of 16 per cent (ordinary skimmed) cream and 3 parts water gives also 1 per cent of proteids, but in the former mixture there will be 1 per cent fat and in the latter 4 per cent. By using part milk and part cream and varying proportions of each, it is evident that any intermediate fat percentage can be obtained without changing the 1 per cent proteids. Knowing that one-fourth of any mixture must be milk or cream, or mixed milk and cream, to give 1 per cent of proteids, it is easy to figure the amount necessary for any percentage by multiplying. Thus, 10 ounces of mixed milk and cream and 30 ounces of water will give 40 ounces of a mixture containing 1 per cent proteids. If we want  $1\frac{1}{2}$  per cent proteids the mixed milk and cream must be raised to 15 ounces, etc.—that is, we multiply one-fourth the total quantity of mixture desired by the desired proteid. If it is desired to make the proteid and fat percentage equal, milk alone is necessary. If, as is usually the case, it is desired that the fat shall exceed the proteids, a certain amount of cream must be used, the amount depending



on the *extra fat* contained in the cream which happens to be available; for instance, with 16 per cent cream for every unit of percentage that we want the fat to exceed the proteids we must use cream to the extent of one-twelfth of the entire mixture, or, stated in a general way (for any richness of cream), the amount of cream will be: quantity of mixture divided by the *extra fat* in the cream to be used, and multiplied by the difference between the desired fat and proteid percentages. We now have a mixture of milk, cream, and water having the desired proteid and fat percentages, and having a sugar percentage which is practically the same as the proteid percentage. It is only necessary to add enough dry milk sugar to bring to the desired percentage. For instance, suppose our mixture of milk, cream, and water has been so made as to contain 2 per cent of proteids, and we want it to contain 6 per cent of sugar, we must add 4 per cent of dry sugar—that is, we find the necessary amount of sugar by multiplying the total quantity of mixture by the difference between the desired sugar percentage and the desired proteid percentage, and divide by 100. If, for instance, we desire 16 ounces of a mixture containing 4 per cent fat and 2 per cent proteids, the simplest and best way of getting it will be to use 8 ounces of 8 per cent cream and 8 ounces of water; but in case other creams are more available, we must remember that we are by no means tied down to the use of 8 per cent cream. We can produce the same formula with mixtures of whole milk and centrifugal cream with water, or whole milk and skimmed cream with water, the proportions being quickly calculated. The reason for using the lightest possible cream is simply in order that as little disturbance as possible of the emulsion may take place. It is for this reason that some pediatricists prefer the mixtures made of whole milk, cream, and water to those made by the laboratory method, where under milk is used, necessitating heavier cream.

**Periostitis, Post-typhoid, in Childhood.**—Würtz<sup>1</sup> reviews the literature of this subject and reports the first case of necrosis of the sternum in typhoid fever in childhood. The patient was a girl 8 years old who developed a swelling over the sternum during the second week of typhoid fever. Puncture drew pus and an incision gave exit to a necrosed piece of the sternum, the entire body of the bone being involved in the necrotic process. Typhoid bacilli were demonstrated microscopically in the pus. Death occurred in the fifth week. At the autopsy an abscess lined by pyogenic membrane was found between sternum and pleura, extending upward to the manubrium. There was broncho-pneumonia in both lungs, and in the ileum there were a few typhoid ulcers, the rest of the intestine showing healing; the right arytenoid cartilage showed a chondritis. Inflammations of the sternum must always be regarded as of grave prognosis because of the close proximity of the vital organs.

**Pertussis, Stage of Incubation in.**—H. Illoway<sup>15</sup> discusses

a hitherto unrecognized symptom of this stage of whooping cough—the occurrence of a slight cough or hack, which is not dependent upon any apparent morbid condition of the buccal cavity, pharynx, or respiratory tract, preceding for some time an attack of the disease and disappearing with the development of the catarrhal stage. The materies morbi of pertussis expends its force upon the larynx, and every atom of this toxic agent has the same predilection established within it. It is, therefore, easy to understand how, with the entrance of the virus into the body with the first beginning of the infection, this tendency to irritate the larynx and its structures should at once make itself manifest.

**Pertussis Treated by Formalin.**—Olliphant<sup>20</sup> claims to have obtained exceptionally good results from the application of a formalin solution to the fauces direct. Out of twenty cases not one lasted more than eight days. He does not give the strength of the solution, but warns that it must be used weak.

**Puberty, Precocious.**—Klein<sup>18</sup> reports the case of a girl  $2\frac{1}{2}$  years old in whom menstruation began at the age of 11 months and continued regularly for ten months, lasting about eight days each time. After an interval of three months the flow reappeared, lasting as a metrorrhagia for six months and resisting all treatment. During an attack of measles the hemorrhage was more severe, but immediately afterward it ceased spontaneously and had not returned four months later. The breasts and genital organs were abnormally large, but the general condition of the child was poor, so that she did not walk. Psychically there was nothing abnormal to the age of the patient. The abdomen was prominent and, on percussion, dull anteriorly. No definite cause could be found for the dulness, but it should be remembered that Kussmaul found ovarian tumors present in three cases of precocious menstruation.

**Pulmonary Tuberculosis.**—John A. Robison<sup>22</sup> writes of the preventive treatment of children predisposed to this disease. It has never yet been fully explained, he says, in what the predisposition consists, but, observing the effect which the bacillus tuberculosis has upon nutrition, it is logical to infer that the predisposition to tuberculosis consists in an inherited cell malnutrition. The tubercular habit is transmitted to the living cells of the offspring of the tuberculous parent. The essence of immunity is lacking and the developmental power of such cells is below normal. The result is that the bodies of such children are feeble, their powers of resistance to disease are lessened, and they are more liable to the infectious diseases. To prevent infection it is necessary to institute the natural cure—that is, promote all the means for procuring normal nutrition during the periods of growth. *Diet.*—A babe should never be suckled by a tuberculous mother, but by a healthy wet-nurse, or it should be fed with some good artificial food. If given cow's milk this should be sterilized, or the cows should be tested for tuberculosis. As the child grows the dietary should contain more fat, and as the salivary glands develop a very

slight amount of starchy food should be added. Early a taste for hydrocarbons should be cultivated, so that the patient will not have the repugnance for fatty food so common in the case of persons who are inclined to tuberculosis. As the period of childhood is approached the diet should contain more carbohydrates, and the inordinate cravings of children for sweets should not be curbed too strictly. Pure candy in moderation is beneficial to children, if given after and not between meals. As a rule, children do not drink enough water daily. Water is fattening and is a great aid to nutrition, it dissolves the food so that it can be assimilated more easily, and it dissolves the effete material in the tissues and fluids of the body so that it can be easily eliminated. After puberty the diet should contain a greater amount of nitrogenous food proportionately than before. The demands upon the muscular system increase with the age of the patient, and strength rather than fat is in demand. *Clothing*—The subjects should be warmly and loosely clad. Woollen undergarments should be worn the entire year, except during the extremely hot days. The changes in temperature should be met by changes in the outer garments. The clothing should be loose to permit of free bodily movements and unembarrassed respiration. To attempt to control the outline of a child's figure by the use of a corset is to lay the foundation of tubercular infection by interfering with the processes of nutrition and the development of the respiratory functions of the lungs. Thin shoes, insufficient head covering, or deficient underclothing are stepping stones to tuberculosis. But, on the other hand, excessive swaddling of the body or of the neck and chest should be avoided, as it tends to create a susceptibility to catching cold, and sudden changes of temperature cannot be so well withstood. *Hygienic training*.—This consists in the proper attention to cleanliness of the body, the avoidance of contact with persons known to have consumption, or the use of any articles of food, eating or drinking vessels, clothing or bedding which have been used by such patients. Babies and children should be early accustomed to the use of cold baths, and the throat and chest should be hardened by the daily application of cold water, and the cold bath should be a part of their daily toilet. Children should not be promiscuously kissed, and their living and sleeping rooms should be as large, airy, and clean as possible. *Education, physical and mental*.—It is a matter of great regret that the children in our schools are not examined by physicians and the kind and degree of exercise they should daily take prescribed, and such physical training made a prominent feature of the curriculum. The proper ratio between the physical and mental training of each child could be then maintained. Parents can do a great deal at home by training their children in physical exercises. The author describes in detail a variety of general and special exercises easily carried on at home and of especial benefit to children with a predisposition to tuberculosis. In addition he recommends the use of resistance valves or the spirometer and

the playing of reed instruments. The pneumatic cabinet he considers useful, but not adapted to home treatment. There should not be mental overstrain at school, and parents should ascertain that the conditions of the schoolroom are what they ought to be as regards ventilation. *Medicinal treatment.*—While normal nutrition is the foundation stone in the preventive treatment of tuberculosis, some remedies are of assistance in the restoration of the normal nutrition. Such are iron, the sodium salts, iodine and its compounds, the phosphates, cod-liver oil (or any assimilable oil), and the nucleins. In children these agents are often of inestimable value. *Climatic treatment.*—The statistics furnished by the census of 1890 show that the greatest mortality from tuberculosis in the United States is in New York, and that it is lowered as we go through Pennsylvania, Ohio, Massachusetts, Illinois, Tennessee, Missouri, Kentucky, Indiana, New Jersey, etc. We soon learn that the mountainous States have the lowest record of deaths from consumption among the native-born inhabitants, and that, all things considered, the dry climates furnish the fewest possible conditions for the existence of consumption. It is obvious that the children of tuberculous parents, if removed from the home climates to dry climates, will in all probability escape infection. The child of delicate physique in high altitudes increases in stature and the thorax enlarges.

**Rachitis, Treatment of Early.**—Fürst<sup>17</sup> pleads for the prophylactic treatment of rickets by means of careful hygiene and diet in all cases in which anemia and delayed or irregular ossification lead to the suspicion of its possible existence. Powdered lime-casein—a combination of the casein of milk and phosphate of lime—has given excellent results in improving the general nutrition and promoting the solidification of bone. It is of especial value during the first and second years of life, but has proved useful in older, anemic children as well. The author regards it as an almost certain prophylactic for rachitis when used for months together with an antirachitic régime.

**Skoliosis, Hysterical.**—Albert<sup>18</sup> met with a case in a girl who at the age of 14 years presented a coxalgia of hysterical origin, cured by warm baths. The patient was very well developed and in apparently blooming general health. One year later she developed a well-marked lumbar skoliosis, which was readily reducible and quite painless. Asafetida cured the condition in a very short time.

**Spina Bifida.**—C. Yelverton Pearson<sup>3</sup> describes his method of treatment of spina bifida by the "open operation" followed by closure of the spinal canal. He thinks the time has arrived when we should adopt bolder and more complete methods in the treatment of this condition, as he is not prepared to admit that the mere shrinkage of the tumor following injections constitutes a complete cure in the true sense of the word. He is satisfied that if we had a full report of all cases so treated the number of failures or fatalities would be in the majority. The author does not agree with the authorities who



claim that the existence of paralysis below the tumor contra-indicates any form of operation, though he admits it is an unfavorable condition. In a case on which he operated the paralysis disappeared after the operation. The author is not without hope that in at least some cases the paralysis may not be of a permanent nature, but the result of the pressure of the fluid in the sac.

**Spinal Curvatures, Forcible Straightening of.**—John Ridlon<sup>22</sup> thus concludes an article upon the subject: In all cases where the deformity is progressing, and in all cases where the duration of the disease renders it certain that consolidation is not far advanced, it is justifiable to make a reasonable attempt to correct or to reduce the deformity, provided, of course, that the patient is not suffering from tuberculosis of the lungs or of the meninges. All cutting operations and all attempts to completely obliterate the deformity at once by means of great force must be regarded as of doubtful utility, since such operations add at least ten per cent to the mortality risk. Sinuses and unopened abscesses are no bar to the operation, provided the straightening be effected with reasonable gentleness. Sinuses and abscesses should not be interfered with surgically, unless the patient is suffering from symptoms of sepsis. In all cases where paraplegia is present the operation is imperatively demanded. After the operation the paraplegic symptoms frequently subside at once and in almost all cases within a few hours. If the jacket be put on with the patient resting on the bridge support and with the spine hyperextended, a repetition of forced straightening with the patient anesthetized will rarely be necessary. When the disease is located at or above the ninth dorsal vertebra the head must be supported; this can usually most comfortably be managed by building the jacket high under the chin, while the head is bent far back and the patient resting upon the bridge. The period of recumbency depends upon the amount of straightening accomplished, the stage of the disease, and as to whether the disease is progressive or retrogressive; it will be rarely less than three months and will often extend to eight months or more. The question of relapse of the deformity has not yet been settled, but it is probable that there will be some return of deformity. It appears to depend wholly upon whether the patient is kept recumbent until the gap produced by the straightening has become filled with osseous material. A cure cannot be diagnosticated until all symptoms of the disease, particularly the symptom of reflex muscular rigidity, have long been absent.

**Suppuration of Middle Ear.**—A. D. McConachie<sup>19</sup> devotes attention to the complications and consequences of this disease. In the course of his remarks he mentions the results obtained from massage by the finger or some of the many masseurs in the market. The author prefers Jackson's pneumatic masseur propelled by an electric motor, giving 150 vibrations a minute. During an extended trial with this instrument he has seen

mobility of the drum and ossicles established, hearing improved, and tinnitus either disappear or much modified after failure of other methods. It is best to pursue the method for three or four weeks, or as long as any perceptible improvement is observed, and the patient, when dismissed, should be instructed to return for further treatment if any diminution in hearing is noted.

**Teratoma of the Right Cervical and Submaxillary Region.**—Hagenbach-Burckhardt<sup>1</sup> presents the picture of a 3-weeks-old baby who had a tumor as large as a child's head on the right side of the neck. It was movable and firm, and caused hoarseness, which disappeared on lifting the tumor from the trachea. As the growth increased in size it was extirpated, and proved to be a teratoma containing cartilage, fat, fibrosarcoma, and neuroglia, with many cysts lined with flattened, columnar or ciliated epithelial cells. There was no trace of the thymus gland nor of lymphoid tissue, but a dermoid cyst containing hair was present. The child made an excellent recovery.

**Tetanus Traumaticus; Case Cured with Behring's Antitoxin.**—Kleine<sup>20</sup> succeeded in curing a 9-year-old boy who developed tetanus three weeks after hurting his left foot with a wooden rake. On the fourth day of the attack the tissues about the wound were excised and an antitoxin injection given; the same was repeated on two successive days. Twenty-four hours after the third injection improvement began, although a fatal prognosis had been given on account of the severity of the symptoms. Urticaria followed the use of the serum, but disappeared in forty-eight hours. Within a month the boy had returned to his usual condition of health and strength.

**Tetany of the Bladder.**—Hagenbach-Burckhardt<sup>1</sup> reports the case of a 2-year-old boy who was admitted with a long-standing diarrhea. He was markedly rachitic and weak; the bladder was greatly distended, and the urine contained albumin. Urine retention was complete, necessitating the use of the catheter. The development of tetanic convulsions, and the observation of tonic spasms of the hands, feet, and face, cleared up the case as one of tetany involving the sphincter vesicæ. When passing the catheter an obstacle (contracted sphincter) was always encountered in the prostatic region, and yielded only after slight pressure continued for some time. The case was completely cured.

**Tubercular Meningitis.**—Henry Dwight Chapin<sup>21</sup> reports some cases of this disease with peculiar respiratory phenomena. The irregularity and varied character of the symptoms of tubercular meningitis may be partially explained by the fact that it is rare for the meninges alone to be attacked by the tubercular process. In very young subjects the bronchial glands and lungs are nearly always involved and the respiration is nearly always affected. The object of this paper is to call attention to a peculiar and intense form of dyspnea that may rarely be

seen in connection with severe cases. It is difficult to explain exactly why these cases presented the evidences of extreme stenosis or obstruction to the entrance of air, as the autopsies showed absolutely no membrane nor any apparent physical cause for this dyspnea. Whether it was due to pressure on the laryngeal nerves by enlarged bronchial glands, or to some cause acting upon the respiratory centres in the medulla, it is difficult to say.

**Tuberculosis in Children, Distribution and Origin of.**—Leonard G. Guthrie<sup>25</sup> gives an analysis of postmortem records in 77 cases seen in the Children's Hospital, Paddington Green, during a period of eight years. The number of cases, he says, is small, and does not convey any idea of the great mortality from tuberculosis among children treated at this institution. Parents have often withheld their consent to postmortem examinations, and many children have been discharged as incurable and are known to have subsequently died from phthisis. Tuberculosis of the various thoracic organs was found 105 times, of the various abdominal structures 102 times, of the brain and meninges 41 times, and of the bones and joints 6 times. The figures do not adequately represent the proportion of thoracic to abdominal phthisis, for the number of organs and structures in the abdomen is greater than in the thorax. A proper adjustment having been made, it is seen that thoracic tuberculous affections are in excess of abdominal to the extent of at least one-third. 2. *Tabes mesenterica* as a cause of death in young children is practically unknown. 3. The preponderance of thoracic over abdominal tuberculosis is not necessarily and solely due to the direct entry of bacilli into the air passages. In addition to this mode of infection the lungs may be affected (*a*) by bacilli entering the thoracic glands through the lymphatics of the pharynx, tonsils, and esophagus above, and through the lymphatics of the intestines and the abdominal gland below; and (*b*) by the entry of bacilli through the thoracic ducts into the pulmonary circulation via the right heart. 4. Primary infection through the alimentary tract does not prove that food has been the sole source of evil; therefore tuberculosis in children is not likely to be materially checked by purification of milk supply alone. 5. The alleged increase of tuberculous meningitis of late years is probably due to pulmonary tuberculosis set up by severe epidemics of measles.

**Typhoid Fever in Children in Hot Climates.**—F. Sbrana<sup>6</sup> gives the results in 72 cases observed by him in Tunis. The fever differs in some particulars from that seen in Europe. The febrile period is variable and the curves very irregular. During the epidemic the prodromata were usually anorexia, headache, and vomiting. Epistaxis was often noted in the early stages, then constipation and vomiting. The tongue was saburral from the beginning in more than two-thirds of the cases; in some it was red, with aphthæ at the base. Diarrheas became frequent during the course of the disease, but were

sometimes lacking. Gurgling in the iliac fossa was rare, and altogether absent under 3 years of age. The lenticular red spots were noticed in only one-third of the cases. A symptom which was never lacking was splenomegaly, appreciable from fifth or sixth day of the fever. The nervous symptoms were more marked in girls than in boys. Mortality was 11.1 per cent. The complications were *meningitis*, *suppuration*, *parotiditis*, *peritonitis* from perforation, purulent pleurisy, aphasia lasting as long as three weeks, dilatation of the stomach during convalescence, and orchitis.

**Vision of School Children.**—J. Acworth Menzies<sup>26</sup> gives some statistics from the examination of the eyes of school children. The importance of examining the refraction of all children's eyes becomes more apparent when the proportion of cases of defective vision is realized. Mr. Lawson, in 2,014 London children, found only 698, or 34.6 per cent, with normal vision in both eyes. The author's examination of 398 Rochdale elementary school children gives 177 normal, or 44 per cent. In addition to these he found 126, or an additional 32 per cent, who would have passed Mr. Lawson's test as normal; that is to say, they read  $\frac{5}{6}$  with each eye, but on testing with weak convex glasses the writer found they had a small amount (1 D or more) of manifest hypermetropia. Allport found, out of 25,696 children in the Minneapolis public schools, 8,166, or 32 per cent, defective, but he does not seem to have tested for the low degrees of hypermetropia, and probably the percentage of emmetropic children was much lower than 68. Another consideration which makes it important that the vision of each individual should be tested at as early an age as possible, is that a child, or even an adult, may be quite content with a defective vision through ignorance that the vision of others is any better than his own.

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ORIGINAL COMMUNICATIONS.

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THE DIAGNOSTIC VALUE OF PAIN IN GYNECOLOGY.<sup>1</sup>

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BY

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WITH AN INTRODUCTION BY A. SÄNGER, M.D., OF HAMBURG.

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(In two parts.)

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AT the request of Dr. Lomer I take great pleasure in prefacing his work. It is most commendable that a gynecologist should have taken up the task of viewing the happenings in his specialty from a neurological standpoint.

Neurology raised its voice long ago against operations on the female genitals done with the view of healing all neuroses. The German neurologist Möbius was the first to write against this abuse, and especially against castration, performed then because of lack of knowledge of the functional disturbances of the nervous system, and especially of hysteria.

Although the question of castration is now quite settled, it

<sup>1</sup> Translated from advance sheets and published by special arrangement with the author.

yet frequently happens that women suffering from hysterical affections are treated locally for months, and for severe pain the knife is too frequently called into action.

This is to be explained, and to a certain extent excused, by the fact that gynecology has only within the last decade gone deeply into the study of hysteria. Marked advances in this direction were made through the study of nervous diseases following accidents.

Of far-reaching significance is the fact, long ago recognized by Charcot, that hysteria is just as frequent in the male as in the female, and that it also occurs in both sexes of children. The idea that hysteria is, as its name would imply, in any way connected with the genitalia, has been absolutely refuted.

The chief merit of the writer, in my opinion, is that he has shown how frequently the pain experienced in the female genitals is but the expression of latent hysteria. Another advance is that the writer has proved, by his examinations, observations, and therapeutic measures, the importance of the rôle played by hysteria, even with organic changes in the genitals, and how important its early recognition may be.

Seven years ago I spoke to the writer upon this subject, and he has since worked incessantly on the neurological basis, and has allowed me to participate in his work by the examination of a number of patients. This needs to be especially mentioned, for it has enabled me to verify the correctness of Lomer's examinations and their interpretation, the truth of which is demonstrated also by the success of his therapy.

Although gynecology will be primarily benefited and advanced by Lomer's work, neurology will also be thankful that he was not satisfied with the immediate practical value of the subject, but that he has made the first attempt to study and elucidate the difficult chapter of pain from a general point of view.

The practical value of this work is so evident that I would wish it known, not only to both specialties, but also to the general practitioner, that the knowledge of functional nervous diseases may be generalized and more attention called to the very significant symptom, pain.

ALFRED SÄNGER.

## PART I.

## HYPERESTHESIA OF THE ABDOMINAL WALLS.

At the meeting of the Society of Obstetricians and Gynecologists at Berlin, January 12, 1883, Landau showed a patient with a dermoid tumor which was very sensitive, while the skin covering it was anesthetic. The tumor was removed, but afterward the former seat of the tumor remained just as painful to pressure as before. Landau considered this a neurosis (*ovarie*) and specified its hysterical character. This demonstration impressed me deeply, as showing clearly the difficulty of distinguishing genuine from hysterical pain, and that we might be just as far from its relief after as before the removal of an organ which undoubtedly had been the cause of the pain. Later I saw many cases complaining of pain in the ovarian region in which an examination revealed nothing. They were reluctantly discharged with the opinion that they were neuralgic or rheumatic. In private practice, where such pain has to be relieved, I was often surprised by the benefit following the application of a weak anodal galvanic current. I therefore looked upon them as neuralgias and can recall a number of cases so relieved.

During the treatment of myomatous uteri with ergot injection it was also noticed that some patients were sensitive on one side of the body, but not so on the other side. In certain instances this condition was so marked that there could be no doubt about the correctness of the observation, and later some colleagues whose attention I called to the fact corroborated it.

During the time that I applied massage according to Thure Brandt I frequently found that the pain the patient complained of was not deep seated, but in the skin. Simply pinching the skin to the right or left, or pricking it with a needle, cleared the case and showed that, though there coexisted accidentally a retroflexion or a tubal affection of the same side, the pain in the skin was entirely independent of it.

Cases that I formerly considered neuralgia of the ovary also belong to this category; the pain was independent of the ovary, because the hyperesthetic area was located far above it, and frequently formed geometrical figures whose extension did not correspond to the distribution of any single nerve. The term *ovarie* did not, therefore, characterize this condition; more properly we could call it *pseudo-ovarie*. But even this designation cannot be applied if we find on closer examination

similar hyperesthetic zones on other parts of the body, in the lumbar region, thigh, etc., which by their location and extent preclude the term neuralgia.

Two facts make the differential diagnosis of this pain in the lower part of the abdomen especially important. A gynecological examination at the present time is complete only when the combined method is used. The outside hand while pressing down causes pain when it comes in contact with one of these hyperesthetic areas—pain which may be misinterpreted. The second fact is that the diagnosis of parametritis not to be operated on grows less frequent, while that of disease of the tubes gets more frequent. If by the combined examination the existence of pain has been shown and there is also disease of the adnexa on the same side, it is evident that we can err radically. That such mistakes occur the cases cited later will go to prove. In the future the gynecologist must ascertain that such pain is not located in the skin. Pinching to the right and left, as before described, is sufficient to call the attention of the examiner to the true condition. If the patient flinches and asserts this to be her pain, we have to look for other hysterical stigmata by examining the soft palate, conjunctiva, narrowing of field of vision, etc.

Before citing my cases a few words about hysteria are in order. To neurology nothing new will be added, but considerable may be taught to gynecology, which is inclined to refer every pain in the region of the genitals to the genitals.

The aspect of hysteria formerly and now is very different, as different as our views on infectious diseases. The change is perhaps most apparent from the fact that we are told we must recognize a hysterical patient not only from her history but also on examination. Not only the subjective judgment of the physician, the complaint of *clavus* and *globus*, but also the objective findings, are telling. Formerly it was more of a suspect diagnosis if a patient, judged by her psychopathic condition, was classed as hysterical. This was changed when Charcot's stigmata became known. In the examinations for hyper- and anesthesia, narrowing of the field of vision, of hysterogenetic zones, anosmia, amyosthenia, etc., we have a scientific basis to determine if a person is hysterical or not.

These examinations lead us to the belief that hysteria is a very widely extending disease, and many have to be classified here who to the older practitioners were not hysterics and who perhaps never or only rarely present symptoms of the condi-



tion. These cases are so very frequent that Charcot accepted such a condition as *hystérie normale*—*i.e.*, where, as shown by examination, stigmata are present, but symptoms are latent and are only brought about by external factors, the so-called *agents provocateurs*.

This picture of normal hysteria is of special importance to our subject, because the pain—*i.e.*, the hyperesthesia—is frequently the only symptom about which the patient complains (monosymptomatic hysteria).

Charcot, by demonstrating its extensive dissemination, does away with the idea that it is a disease of culture (civilization) and to be found only in easily excitable people, like the French. Laplanders, Finns, Turks, Tunisians, Senegambians, Caplanders, all participate. Jews are particularly prone to it. All vocations, city and country inhabitants, are subject to it, and it is to be met with in all ages. I lay stress on this fact, because one does not suspect how frequent the disease is with us, and my observations are based just on that fact.

Just as cultivation has little, if any, bearing on hysteria, so repressed sexual appetite can scarcely be considered a causative factor, contrary to the general belief at the present time. Charcot has shown that most hysterics do not care much for the sexual relation, because here too anesthesia of the sexual organs plays a part. Even unlimited sexual satisfaction does not protect from it. Out of 197 prostitutes at the age of 22, Charcot found 106 hysterical. The word hysteria is altogether badly chosen, for the condition bears no relation to the uterus. This is also evident from the fact that it is more frequent in the male sex than is generally admitted. Eulenberg and Mendel found, out of 11,225 patients at the Nerven-Poliklinik, 1,224 hysterics; of these 122 were males. Pitres finds that of 100 hysterics 69 are females, 31 males. Marie<sup>1</sup> comes to the conclusion that hysteria is more common in the male. Out of 525 males in his division 250 had outspoken symptoms. The same result has been reached by Souques, at least among the poorer classes. The above observers explain this in that men are more exposed to trauma and intoxication, the *agents provocateurs*.

Finally, I would refer to Sticker's publication,<sup>2</sup> who found 51 hysterics out of 1,000 consecutive cases at the Giesen clinic. The diagnosis was made only on certain hysterical stigmata. There were 15 males, including 6 boys; 36 women, including

<sup>1</sup> Gilles de la Tourette: *Traite d'Hyst.*, p. 59.

<sup>2</sup> *Zeitsch. für Klin. Med.*, Bd. xxx.

12 girls under 12 years of age. They belonged to the class of mechanics, servants, laborers, peasants, miners.

Hysteria is also common during childhood. It has not been observed with sufficient care. Sticker relates the story of a 12-year-old girl who was taken with convulsions at school. Soon five other girls were taken with similar convulsions. The following day the same happened to four or five others. The teacher said that such school dramas were of frequent occurrence. Clopatt<sup>1</sup> has seen with Charcot 272 cases in children under 15 years of age; of these 176 were girls and 96 boys. I have cited numbers here intentionally, because they show how frequent hysteria is, and I need this presumption of frequency to bear out my later remarks.

The fundamental cause of hysteria is heredity. Briquet asserts that 25 per cent of children of hysteric and neuropathic parents are hysterics, and that in one-fifth of these it develops before puberty. We can distinguish several degrees in hysteria:

1. The very widespread hysterical disposition—normal hysteria. The hysteria is here latent and remains so possibly throughout life. Many histories to be cited belong to this category. Without looking for stigmata, no one would classify them in the hysteric class.

2. To this may be added one or more *agents provocateurs*, such as trauma, causing the traumatic neuroses, fright, infectious or debilitating diseases, hemorrhage, chlorosis, diseases of the sexual organs, intoxication, etc. In this way we get the picture of hysteria as seen by the older physician. To us gynecologists the effect of excessive hemorrhage is of special importance. Sticker says: "Women after serious childbeds have the preference." The anesthasias and hyperesthesias, perhaps not even noticeable in patients of the first category, cause in these difficulties and take the patient more and more to the doctor. Now we also find the first appearance of hysterogenetic zones (cephalalgia, epigastralgia, pleuralgia, sacrodynia).

3. The so-called grand hysteria. Here convulsions start from the hysterogenetic zones and are interrupted by pressure on the respective spot (*ovarie*). This is the domain of the former driving out of the devil, of the amauroses and contractions. Charcot does not consider the existence of hysteropilepsy as such, but says that it is nothing else but *grande hystérie*, although real epilepsy may occur in the hysterical.

<sup>1</sup> Gilles de la Tourette, p. 50.

Out of this entire picture of hysteria the hyperesthetic zones of the abdominal walls are of especial interest to us, and this the more so the fewer other symptoms of hysteria are present. As these pains occur in women who are ordinarily not supposed to be hysterical, they lead to false interpretations, the sensitiveness being attributed to the underlying organs and thus leading us to propose useless and dangerous operations.

I shall first enumerate cases with hyperesthesia of the abdominal walls, but with normal pelvic organs. These cases present frequently unmistakable pictures of hysteria, but to a certain extent they are "normal hysterics," the true explanation being found only after examining for stigmata.

This matter is of practical importance. In one patient, where the condition was not recognized, abortion was about to be induced, and in a former pregnancy a hysterical attack was taken for eclampsia. Another patient requested the performance of a capital operation should her pain return. In a third case a movable kidney without any symptoms suddenly became very painful because of the interest several physicians showed in it, and the patient requested that it be anchored.

Since, in searching for hysterical stigmata, I have made use of the examination of the soft palate and conjunctiva bulbi for anesthesia—especially of conjunctiva not covered by the eyelids—I would, before passing to histories, cite Winscheid<sup>1</sup> about these examinations:

"A very important rôle is played by the anesthetics occurring in the mucous membranes, which are rarely missed in hysteria and which have to be designated as stigmata. Two membranes, characterized by the ease of their examinations, conjunctiva and soft palate, are of especial value for this. An individual with normal sensation will not allow the conjunctiva to be touched, but reacts at once by reflex closure of the lids; if the lids are forced open and the conjunctiva is touched, unpleasant sensations—reflex, flow of tears, etc.—occur. In hysteria we can usually touch the conjunctiva with a fine brush, blunt needle, or finger, without sign of discomfort to the patient. We find several degrees of this anesthesia. In the slightest the conjunctiva appears to be anesthetic, and, while the touch gives no unpleasant sensation, there is a reflex motion of the eyeball, usually up and outward. The anesthesia is of a higher degree if this motion does not take place; most complete when the corneal conjunctiva is insensitive and

<sup>1</sup> Monatshefte f. Geb. und Gyn. p. 481.

the finger can be placed directly over the pupil. This corneal anesthesia is not very common. The anesthesia of the soft palate shows itself when, on touching it with a spatula or other instrument, no reflex gagging follows. This anesthesia, however, has to be interpreted as one of hysteria with great care. It does occur occasionally that in entirely healthy individuals the sensitiveness of the pharynx is lowered or abolished, so that we cannot diagnose hysteria from pharyngeal anesthesia alone."

My attention was first called to the importance of hysterical stigmata by a pamphlet of Dr. A. Sanger on "The Diagnosis of Nervous Disease following Accidents." From this pamphlet it became evident that hysteria is frequently met with in the working class, and in a special chapter he calls attention to the significance of the stigmata in establishing the fact of the disease.

I. CASES IN WHICH THERE WAS NO GYNECOLOGICAL DISEASE THAT COULD BE BROUGHT IN RELATION WITH THE PAIN.

CASE I.—*Dysmenorrhea when a young girl. Two births, one breech presentation with deep laceration of cervix; later endometritis with irregular hemorrhages; curettage and repair of cervix. After two years, during regular function and normal condition of genitals, hyperesthesia of abdominal walls with other stigmata. Disappearance of symptoms after iron and one application of the galvanic current.*

Mrs. X., 30 years old. First menstruated at 14, very painful; had to go to bed frequently; pain persisted even if flow was abundant. Married for eight years; gave birth to two children, first one breech presentation, deep perineal tear; last child four years ago. Comes to be treated for excessive flow at menstruation, which now comes on every fourteen to sixteen days and lasts for six days. Leucorrhea; extensive laceration of cervix on the right side; ectropium of the mucosa, which bleeds easily; enlarged, sensitive uterus. Curettage and Emmet's operation for the lacerated cervix was performed. After this she was free from pain and did not complain about her pelvis. Two years later, comes again with burning pain in the right side of abdomen, radiating into the thigh and increased by psychological excitement.

Although the functional condition of the genitals was entirely normal, I looked for disease of the right tube. Therapeutic measures, such as hydrotherapy, iodine to vaginal vault, were without result. By elevating a fold of the skin to the right and left of and below the navel and pinching it gently, the pain was localized in the skin. The patient designated this at once



as her pain. The hyperesthetic zone lay higher up than the ovarian region, was circumscribed, and the size of the palm of the hand. The needle point was felt with different intensity on either side. The expression of pain is typical if we get near the hyperesthetic area. The patient cannot tell about it without twisting her body and grimacing. On closer examination we find a few more hyperesthetic areas on the right side of her body, and she also has sternal pain. The pharynx and conjunctiva bulbi are anesthetic. Patient was not aware of these anesthetics. Under the use of the galvanic current (anode over anesthetic area), two to four milampères, the pain improves very rapidly. After the first séance the patient feels improved (action suggestive?) Under the use of tinctura ferri, nervina Bestuscheffii, and requesting her not to pay any attention to her pain, even the sternal pain disappears.

CASE II.—*When girl, great dysmenorrhea. When newly-married, infected with gonorrhea and remained sterile. Had, four years ago, fixed retroflexion with exudate. Now, after replacing the uterus, and with normal condition of genitals, hyperesthesia of the right half of abdomen with other hysterical stigmata and symptoms. Favorably influenced by the galvanic current.*

Mrs. Z., 33 years old. First menstruated at 12, with terrible pain; would frequently lie in bed for eight days and in deep syncope. Married six and a half years; no children. Husband had repeatedly had gonorrhea and epididymitis; his spermatic fluid contained no spermatozoa. Patient was treated during first years of her marriage on account of pain; complained especially of a place under right ribs. There was recurrent pain also on right side of abdomen, radiating into thigh, following psychical emotion. There was a retroflexion. I referred the pain to this condition and tried to replace the uterus by massage. Soon, however, peritoneal irritation became so marked that I had to desist from treatment and resort to ichthyol tampons and sea-salt baths. When the patient started for Franzensbad we found the uterus embedded in a mass of exudate. Four years passed before the patient returned to me. The uterus was then freely movable and there was no pain in the pelvic organs; but there was pain over the half of the abdomen, which, from the history and course of the case, could easily have been referred to the tube. But the pain could be localized in the abdominal wall. Pressure on the right side elicits pain (*ovarie*). The entire right side of the body is anesthetic as compared with the left side. Both conjunctiva bulbi anesthetic; pharynx normal. The patient makes a hysterical impression. She tells that she wakes up frequently at night with a sensation of paralysis of the tongue. Therapy, pil. Bland; constant current, four milampères, anode right side. Advised to adopt a child. After a few calls she complained less, and finally fully recovered.

CASE III.—*Following a supposed attack of inflammation*

*of her bowels at 17, shows typical hysterogenetic zones (ovarie; phantom tumor). Cured by persistent galvanic current and suggestive treatment.*

Miss X., age 21. First menstruation at 12½, without pain; duration eight days. At 17 treated for suspected peritonitis with fever and inflammation of bladder. Sick since then; was for months in hospital and was hypnotized. Patient came to the Poliklinik with complaint of pain in her left side. Pressure over the ovarian region causes clonic convulsions of the diaphragm. The entire left abdominal wall from ribs to symphysis hyperesthetic, and one spot, the size of the palm of the hand, to the left of the navel, is very much so. On attempt to make a combined examination patient has a convulsion. At home she claims to have constant nerve twitchings. During the course of further treatment we thought we detected a tumor of the right side, but it disappeared under anesthesia. Then only did I recognize the true nature of the case, and treated her with galvanism and suggestion and Bland's pills for months. Patient returned after one and a half years, saying that she was well and would like to get married.

*CASE IV.—Dysmenorrhea, hysterogenetic zones, and hyperesthesias connected with signs of grand hysteria in a patient who does not impress one as hysterical. Phantom tumor leads to examination under anesthetic. Genitals normal. Favorable result from galvanism.*

Mrs. I., age 30. First menstruation at 14, with excessive pain. Married six years. Had two children born at term, last one three years ago. Has lost twenty pounds since last confinement. Two years ago suspected inflammation of spinal cord; could not walk for fourteen days. Her physician reports that she was at that time without objective changes in the nervous system, with sudden paralysis in the lower extremities. Patient had to almost learn how to walk again, the physician leading her about in a stooping and swaying position. With electricity, baths, and massage she regained power slowly. Patient sent to me, complaining of pain in her left lower abdomen, and cramps starting from this place. The pains follow excitement; they appear suddenly, and she has to double up in bed, or assume the position of *arc de cercle*, resting only on her head and heels. There is hyperesthesia of the right side of the body, anesthesia of conjunctiva bulbi and pharynx. Hysterogenetic zone, size of palm of hand, between shoulder blades. On pressure over this area she begins to shiver, and more forcible pressure causes clonic convulsions. A similar zone is located over the sacrum. The left side of the abdomen is distinctly bulging, and one feels the presence of a tumor. Suspicion of pyosalpinx. The skin over the tumor is markedly hyperesthetic. On examination under anesthetic, genitals are found normal and no tumor is present. Cure by successive use of suggestion, galvanization, and iron. Eight months have passed since then; she remains well and has gained considerably in weight. From her disposition she would

not be suspected of being hysterical. She is a quiet, sensible woman. Her physician was surprised when he heard my diagnosis. Yet with all that we had a marked case of hysteria to deal with.

*CASE V.—Probable inherited hysterical disposition. Distinct influence of “agents provocateurs.” Following this, sharp onset of disease. Hyperesthesia of entire left side. Pain in left lower abdominal region, cured after two applications of the constant current. Patient would like to submit to major operation should the pain return.*

Mrs. T. Sent to me for operation, if necessary, to relieve pain in the left side. Her father died when 60 from apoplexy; mother, who is alive, is very nervous; one sister is also very nervous and is constantly under a physician's care. First menstruated at 17, regular, with pain. Married fourteen years; had three miscarriages without known cause, last one six years ago. Husband is well.

Patient has been sick for the past five months, “although she was always ailing.” Five months ago her menstruation was very slight and she considered herself pregnant. When that was not the case she was greatly disappointed. Then she had more excitement from not being able to collect money lent. Since then she has tremor, cannot lie down on account of pain in back, always has headache, her mouth is always dry, and there is pain in left lower part of abdomen.

Genitals, on examination, found to be normal. During one examination the uterus was retroverted, but normal the next time.

Hyperesthesia of entire left half of body, especially to left below the navel. Anesthesia of palate and conjunctiva bulbi. After applications of the galvanic current (4 milampères) the patient said that the pain in the stomach had disappeared, but should it return she wished to have a major operation.

I would call attention to the frequent occurrence of dysmenorrhea in these women. In almost every history we find it mentioned. The nervous character of the pain shows itself in that it frequently continues when the flow is quite abundant. The psychical alteration to which some patients are subject is also worthy of attention. This is well shown in Case 5, where the patient, instead of being happy in having her pain relieved by trivial measures, requested beforehand that a major operation be performed should the pain return. Some have, as will be seen later, a mania for operations. They disdain all danger. It is evident from their remarks that they do not care whether they recover or not. This shows perversity, since, without regret, they cause their relations sorrow, great loss of money, or anxiety. We have here a moral degeneration—I would almost call it a dream life—

which always turns about the ailing sensations of the morbid ego and is subject to the influences of the changeable, self-hypnotized self. In other words, there exists an ethical defect which reaches its acme in an egocentric direction of thinking. On the other hand, there are a number of patients with undoubted hysterical stigmata who have a clearly noble character, who are lovable, unselfish, and who do not in any way suggest the picture of hysteria in the former sense of the word. We have, therefore, to assume that the latter present the uncomplicated symptoms of hysteria, while in the former we have the mixed forms of hysteria and mild psychosis on an inherited degenerative base.

I would further lay stress on the numerous symptoms of some hysterics. With them everything is exaggerated. The pain is designated as terrible. They groan, toss, twist, and turn. Here we have the most remarkable eruptions of the skin artificially produced by the patient. We have seen phantom tumors; we had paralysis of the cord, which was cured in fourteen days. One patient was asked to send a sick report, and she sent in daily nineteen closely written pages. One patient had been eighteen times anesthetized, had two laparatomies performed, and wants a third. Once I saw a hysterical woman in her ninth month of pregnancy and with abdomen enormously distended by hydramnion, forming an *arc de cercle*. The picture I shall not forget. Neck and head rested on the bed, the spinal column formed an arch, and the very much bowed abdomen pointed upward. It was a hardly credible situation. Everything phenomenal, an extraordinary complex of symptoms or unusual history, should attract attention. The constant attendance of the patient at the office can also be counted as belonging here. Everything unusual during the examination should attract the physician's attention. Among all these symptoms hyperesthesias of the abdominal walls are most common.

CASE VI.—*Movable kidney without symptoms in a hysterical patient becomes painful after her attention has been called to it by several examining physicians. Patient requests to have it anchored.*

Mrs. U., age 37 years. Menstruated regularly at 15; had two children, last one eight years ago. She came to the clinic because she thought she felt a solid body in the right side of her abdomen. She had no trouble from it; she only wanted to be assured that it was a natural condition. She was examined by several physicians, whose examining eyes she followed care-



fully. She had a typical movable kidney. Pelvic organs were normal, except that she had a rather heavy uterus and some cicatricial thickening in the right parametrium. Because of examinations and attempts at replacing the organ in the Poliklinik and her position in bed in the clinic, the attention of the patient was directed constantly to the kidney (*agent provocateur*), and soon she began to complain of pain. This pain could be localized as a hyperesthesia of the skin over the side. There were, besides, painful points on pressure over the spine, anesthesia of the palate and conjunctiva, and contraction of the field of vision. Dr. A. Sanger, who examined the patient, pronounced her to be a typical hysteric. Later the patient desired to have the kidney fixed.

CASE VII.—*Hyperesthetic zone of left side impressed one first as being a movable kidney, later as chronic catarrh of the large bowel. Recovery after use of galvanic current.*

Mrs. X., 34 years old. Menstruation at 14, painless, slight. Gave birth to three children, last one five years ago. Has complained for years of pain in left side, usually associated with pain in back and headache. Pain is not influenced by rest. Her family physician diagnosed movable kidney and ordered a bandage. This gave no relief. Pelvic organs normal; marked flatulence. She was much emaciated, and because she said that with her pain she had diarrhea I suspected catarrh of the bowel and ordered Carlsbad salt. The failure of this led me to examine the skin for hyperesthesia. This was present in a typical form to the left above the umbilicus, a band the width of a hand extending to the back. The slightest touch caused pain. The bandage, which by pressure seemed to make her worse, was left off. On repeated examinations I could not feel the kidney, and the patient was permitted a mixed diet. After the first galvanization she said the pain changed; it became less unbearable, and soon disappeared entirely. Shortly after this she went up the mountains with her husband, a tour she had formerly considered as something impossible. She gained rapidly in weight and has remained well now two years.

CASE VIII.—*Hysteria during pregnancy. Patient tried everything to have an artificial abortion produced. Very likely mistake of hysterical for eclamptic convulsions. Attacks of persistent vomiting during pregnancy. Hysterical hyperesthesias appear, with paralysis and neuralgias. Sleeplessness not relieved by remedies. Rupia-like skin eruption proves to be artificially produced.*

Mrs. K., 26 years old. Menstruated at 15, irregularly, painful, slight in amount, and clots. Married at 20, and suffered from catarrh of bladder for a long time after introduction of catheter; one child, forceps (on account of eclampsia). Had cervix sutured; later was curetted, and at a clinic treated by overfeeding.

Now pregnant for the second time and is very unhappy

about it. Vomits everything, and has such painful neuralgias that she is not able to stand up or walk. Has recently been treated by four physicians, and from one she got a statement that if her condition continued he would consider the induction of abortion. The family physician tried many remedies for her insomnia, without avail. When I first saw the patient she was five months gravid, very pale, miserable-looking, a picture of distress; pulse very frequent, tongue dry; vomits everything, and suffers so much from pain that she can hardly sit up in bed. A crusty eruption on the skin of her forearm, shoulder, and thigh was especially remarkable, with its one and a half centimetres high, ragged, dry, black-brown scales. One could not recall having seen anything similar. Dr. Arning pronounced them to be rupia-like artefacts, and laid stress on the point that they appeared only where the patient could reach with ease. There was no explanation of the method of their production. She presents many skin hyperesthesias, especially on the right side of the abdomen. Slightly contracted pelvis, conjugata diagonalis eleven centimetres. This is the only objective pathological point that can be found.

I brought the patient to the clinic and had Prof. Sanger confirm the diagnosis of hysteria. After that everything changed under the influence of suggestion and firmness.

When the patient found that the skin eruption was of no interest to us and it was not necessary to show us any new eruptions, they did not reappear and the old places healed quickly. The same happened with the vomiting when she was not sympathized with and was directed to get her own vessel to vomit into. The loss of appetite stopped when she was not urged to eat. She drank a quantity of milk, took Bland's pills, and regained weight rapidly. She had been bedridden for months, and it was necessary, with a show of great authority, to take her by the arm and lead her about the room, bent over, moaning with pain. The next day we succeeded in taking her into the garden, still with considerable moaning. She was left there for some time, and on the approach of a storm she found her way to her room without assistance, though with considerable indignation.

The pain in the right side of the abdomen was most troublesome. The slightest touch here was very painful, and on raising a fold of the skin she screamed. She left the clinic and came to my office, and was there galvanized with great success. We constantly had new scenes, but every time firm resistance overpowered her will. A marked improvement was noticeable. Finally, after four weeks, she went home, florid, eating, walking, and sleeping well. The only concession made was that, owing to the slight contraction of her pelvis, we would induce labor three weeks before term. This was done with bougies, and in twenty-four hours she was delivered of a living child. Dr. Lurie, who was present, witnessed a typical hysterical attack during the expulsion period. Is not the assumption correct that the eclampsia during birth of her first baby was

also hysterical? The puerperium was normal; child remained alive. The husband, seen two years later, told me that his wife had always been delicate and weak, but since that time always healthy.

Pitres<sup>1</sup> reports a case in which abortion would have been induced because of supposed eclampsia, but for the finding of a hysterogenetic zone under the left breast. Pressure over this area produced an attack then recognized to be hysterical.

The second class of cases comprises abdominal sections performed mostly for the relief of pain. And because of the coincidence of pathological changes in the pelvic organs, the propriety of such operations cannot be criticised. In none of these has the object of the operation—*i.e.*, relief from pain—been attained. Had the patients been examined for stigmata prior to the operation, the prognosis as to the relief of pain would have been more guardedly given, and possibly the idea of operation would have been abandoned.

## II. CASES IN WHICH LAPARATOMY WAS PERFORMED FOR THE RELIEF OF PAIN.

**CASE IX.**—*On account of pain and suspected tuberculosis the left adnexa were removed by a physician. The pain became more severe after the operation.*

Miss R., 24 years old. First menstruated at 23, irregular, intermittent, and of two days' duration. Patient tells of rape committed on her at the age of 9; following this she was sick three months. Has had pain in her left side since that time (important as an *agent provocateur* of hysteria). Principal complaints besides pain are wetting the bed, headache, palpitation. Claims to have spit up three to four cups of blood two years ago.

*Present condition.*—No scar on vulva; vagina short and narrow; uterus small, retroverted, movable, and drawn to the left; cervix very small, orifice is a transverse slit; left ovary in Douglas' pouch, right one absent; urethral opening very wide; urine normal. Patient appears to be very anemic and somewhat stupid; lungs normal. Mother supposed to have died from tuberculosis.

*Diagnosis.*—Anemia, hyperplasia of genitals, amenorrhea, enuresis nocturna, hysteria, hyperesthesia of abdominal walls. The diagnosis hysteria was based to a great extent on our examinations, the pain in the left side being caused by a hyperesthetic area; besides, there is anesthesia of pharynx and conjunctiva bulbi. It is further based on the diagnosis of Dr. A. Sängner, to whom we sent her for her enuresis, who also diagnosed narrowing of the field of vision. The enuresis was

<sup>1</sup> Gilles de la Tourette, p. 318.

improved markedly by suggestion. We treated her with iron, cold sponging, oöphorin tablets, and also introduced once a retroversion pessary. She told us of terrible metrorrhagia, which was impossible with the undeveloped organs; she also claimed to have fever at night, but this was negatived by our thermometer, and an imaginary catarrh of the bladder was also absent. After watching her from February until August and studying carefully her pain in the left side, she stayed away, and came back in June of the following year. In the meantime she had a laparotomy done, and reports now feeling worse than before the operation. The physician reports that he suspected tuberculosis of the adnexa and removed an inflamed ovary and tube. The enuresis was still present, as were also the amenorrhea and anemia.

CASE X.—*Woman of 23 years; born from neuropathic family. Both appendages removed in America on account of pains. The pains remain the same and can be located in the abdominal walls. They disappear under galvanic treatment.*

Mrs. X., 24 years old. Had a hysterical mother. She first menstruated at 15, the flow lasting two to three days, with severe pains on the left side. They were present although the flow was profuse. At 17 she had considerable family trouble and psychical excitement (*agent provocateur*). Married three and a half years ago. After a year pain appeared in her left side, radiating to back and coccyx (coccygodynia). A physician diagnosed a displacement and introduced a pessary. When the pain was not relieved he decided to do a laparotomy. The appendages, supposed to have been diseased bilaterally, were removed. Two months later I saw the patient, suffering from the same pain as before the operation. Exquisite hyperesthetic pseudo-ovarian zone to the left. Patient experienced excessive pain on the slightest pinching of skin and pronounced this as her pain. There was similar pain over the sacrum and coccygodynia, anesthesia of pharynx, and bulbar conjunctiva. Pain disappeared on galvanization and iron medication, to great surprise and joy of patient.

CASE XI.—*Severe laparotomy for right-sided ovarian tumor. Had, previous to operation, pain in her left side, which is still present. Pleuralgia, epigastralgia, and hyperesthetic area in the left inguinal region. Surprisingly rapid recovery from the pain on galvanization.*

Mrs. R., age 40. First menstruated at 15, excessive, lasting eight days, painful. Married fourteen years; no children.

Four and a half years ago laparotomy was done for right-sided ovarian tumor. The operation was very difficult, lasting four hours and a half; intestine was resected. The left ovary was also removed. Remained seven weeks in bed. The stomach could not retain anything and is still weak. During her first outing after the operation she met with an accident, was thrown against a tree and received contusions of face.



Before the operation patient complained of pain in her left side. She could not understand that her tumor should have been on the right side. The pain was not influenced by the operation. There are two spots in particular from which the pain starts: the one is on the left side above Poupart's ligament, the other under the ribs. The pain is said to be constant and becomes much worse after excitement. The patient is subject to migraine, which, she says, is inherited from her mother.

Since the operation her menstruation has been very irregular and very painful, slight in amount, and accompanied with nausea. She has become stout, especially in the abdomen, and fears that she has another tumor. Has taken iron repeatedly, but cannot bear it. She says that "she is constantly doctoring and runs from one drug-store to another." This is especially the case with stomach remedies and cathartics. The stomach is weak, can take only selected food. Sleeps badly, especially during change of weather. She is always tired, never wakes up refreshed. Constipated for many years. Has cold feet always, and suffers from palpitation when climbing stairs.

*Examination.*—Corpulent, very anemic woman. No tumor in abdomen; uterus freely movable; no stump exudate. Hyperesthetic zone of the abdominal walls above Poupart's ligament, left side, same under the ribs, also along the borders of the stomach. On pinching the patient on the skin over these areas she says at once, "That is my pain." Complete anesthesia of the ocular conjunctiva and pharynx. She also has had anosmia for many years. She cannot detect the strongest odors. This patient was also treated with galvanism. Her pain was considerably relieved after the first sitting. The application of the current, first at frequent, later at longer intervals, was so successful that the pain, which had lasted for five years, had disappeared in three weeks. The migrainous headache only remained; but that, too, is less severe. It was very difficult to induce her to take iron; she insisted that her stomach could not bear it. With all that she took nine Blaud's pills daily and stomached them well. The special diet was also stopped. She could suddenly use any kind of food, and was relieved of her constipation. The stoutness was relieved by diet and long walks. The menses, painful since operation, are now painless. On her last visit she told me that she felt like a new person. She has normal, refreshing sleep; eats everything. She moved recently and helped at it—a thing she could not think of before.

In connection with this case I would add a few remarks. It is typical in hysteria, and only in this disease, that pain which has persisted for years can be abolished at once. Charcot said: "The duration of the disturbance in hysteria has no influence on the curability of the malady." These successes stand on

the same footing with those paralyses lasting for years, which are cured at once if we strike the right key.

I would, furthermore, call attention to the pleuralgia in this case, which is so frequent, appearing either under the mask of a pleural affection or an intercostal neuralgia. Winscheid<sup>1</sup> calls especial attention to this localization. Lastly, I would recall the disturbances of the stomach with the remark: "Only special diet can be taken; iron is absolutely not tolerated." We find here simultaneously hyperesthesia corresponding to the changeable borders of the stomach. Whoever is interested in this stomach affection should read Sticker.<sup>2</sup> He will find in that excellent work on the diseases of the stomach and their treatment precisely the same facts that we are trying to formulate about the pelvic organs. To me there is nothing that confirms the correctness of my views more than that another, working in a different field, should have reached exactly the same conclusions.

Sticker cites the following case: Seamstress, 27 years old. Stomach trouble since 1888, with unbearable pressure pain after eating, attacks of pain and vomiting. Various measures directed against the suspected ulcer and nervous dyspepsia were without effect. After curetting and introduction of pessary in 1890 by a physician, she was free from suffering for a week, after which the pain returned with increased severity. Dilatation of cervix in 1893 was without result, as was also an abdominal section done in 1895 for retroflexion, right oöphoritis, resection of left ovary, and abdominal fixation. Previous to the last operation she had for months attacks of pain radiating from the left side of the abdomen, palpitation, buzzing in ears, choking sensation, and vertigo referred to the region of the stomach. These attacks disappeared for four weeks after the operation, but they soon returned and tortured her more than ever. Sticker recognized hysteria and demonstrated hyperesthesia, which followed the outlines of the stomach when he inflated it (visceral hyperesthesia).

The following case is interesting, although very pathetic:

CASE XII.—*Typical hyperesthesia of ovarian and lumbar region and thigh of right side in a lady from a neuro-pathic family. Retroflexed uterus, prolapse of ovary, and ovaralgia. Although I called attention to the hysterical character of the pain, ventrofixation and extirpation of the*

<sup>1</sup> Ueber Hyst. Schmerz. Monatsch. f. Geb. und Gyn., Bd. ii., p. 478.

<sup>2</sup> Zeit. für Klin. Med., Bd. xxx.

*right ovary was done. Patient worse after than before operation, as far as her pelvic trouble is concerned. Later difficulties of the stomach were most prominent. Ulcus ventriculi diagnosed, and, when patient threatened to die from inanition, gastro-enterostomy was done. The patient died, and the stomach was found to be free from organic disease.*

Mrs. X., 21 years old; comes from very nervous family. When a young girl she suffered from dysmenorrhea and pain in the right lower abdomen. Had one child born one and one-half years ago; labor easy, childbed normal.

Complained of pain on right side, difficulty in walking, insomnia, loss of appetite. Remained in bed for weeks and had massage, electric baths, pessary, etc., without result. Had retroflexion of uterus and prolapse of right ovary, which is very sensitive to slightest touch. Although there was a certain degree of ovaralgia, we could determine that the pain she complained of, and which prevented her from walking, emanated from hyperesthetic zones of the abdominal walls and the right thigh. There was a hyperesthetic zone in right lumbar region. I recommended treatment in a cold-water institution; but some one did a ventrofixation and removed her right ovary without beneficial result. In this case unpleasant family relations constituted the *agent provocateur*.

The further history is pathetic but instructive. Immediately following the operation the pelvic trouble and difficulty in walking became more marked. Later the gastric symptoms became prominent; a stomach specialist was consulted, who, in the absence of hemorrhage, diagnosed ulcer of stomach. All possible remedies were tried, but she failed constantly. When internal medicine failed, a surgeon was called. He found her extremely emaciated and so weak that she was unable to turn in bed. There was enormous sensitiveness of the stomach. Because of the pain food could not be taken, so that only one to two teaspoonfuls of milk were taken in twenty-four hours. Nutritive enemata could not be retained. Gastro-enterostomy was proposed as a vital indication, and especially because of the beneficial effects of such operation in painful ulcer with spasm of the pylorus.

This proposition was accepted ten days later. By this time the patient was so weak that the surgeon could hardly be persuaded to operate. After the operation she could take nourishment without pain, but died finally from inanition. The post-mortem failed to reveal any ulcer or a scar, or even perigastritis. This patient was simply starved through her hysteria.

That hyperemesis gravidarum frequently furnishes the same picture is well known, also that some patients die from inanition. Through the writings of Kaltenbach,<sup>1</sup> Ahlfeld,<sup>2</sup> and Klein<sup>3</sup> we also know that many cases of hyperemesis

<sup>1</sup> Cent. f. Gyn., 1890-91.

<sup>2</sup> Ibid., 1891.

<sup>3</sup> Zeitsch. f. Geb. u. Gynäk., Bd. xxx.

gravidarum are of a hysterical nature, and I think that the above case of a non-pregnant hysterical woman, without disease of the stomach, dying from inanition is a striking proof of the correctness of the hysterical basis of certain cases of uncontrollable vomiting.

But, looking at it from a humanitarian point, the case is a serious one and excites some thought. Think of the number of medical advisers—family physician, gynecologist, gynecological authority with conclusion: laparotomy, castration, ventrofixation; then again family physician, stomach specialist, surgical authority with the decision gastro-enterostomy. Finally the pathologist discovers that no organic disease is present.

CASE XIII.—*Hysterical woman with eighteen anesthetics, two laparatomies, wants a third laparotomy, or extirpation of her uterus, on account of her pain; opposed by me.*

Mrs. X., 39 years old; menstruated at 12, very painful. 1883: Married when 23 years old. 1884: Premature birth at eight months; forceps; hemorrhage after fourteen days. 1885: Local treatment, cauterization and curetting. 1886: Second curetting; wears pessary. 1887: Operation on hand for ganglion. 1888: Local treatment and cauterization. 1889: Husband died from tuberculosis. Patient treated locally and had laparotomy for left pyosalpinx. 1890: Goes to the country; again local treatment, and gets a ring. Treatment with Koch's lymph. Up to this time has had massage, overfeeding, cold sponging, baths, douching, dilatation of cervix, and, internally, paraldehyde, belladonna, sulfonal, opium, morphine, antipyrin, ichthyol, secale, arsenic, and ten physicians have in turn treated her. 1891: Two operations on the hand. 1892: Three operations on the hand; marries again; fourth operation on the hand. Treatment with Koch's lymph. 1893: She returned to me for treatment. I did not do any better than my predecessors, not knowing at this time that hysteria was the fundamental trouble. I believe that examination for Charcot's stigmata would have done more for her than the operations. After recognizing the true state of affairs she declined all further operation, on my advice. When I took charge of her, her condition was as follows: Emaciated, pale, much-afflicted woman. Remembering that her first husband died of tuberculosis, it was looked for in her. She had a purulent discharge from cervix, with erosion and irregular uterine hemorrhages. In Douglas' pouch lay the right ovary, adherent, transformed into a small fluctuating tumor, very painful to pressure. I punctured this tumor through the vagina, removing thirty cubic centimetres of albuminous fluid, and relieved her some; the cervical catarrh and erosion healed up. She complained, however, of pain, and it was difficult to evade her logic—"if the ovary is diseased, why not remove it too?" I tried to improve



her nutrition by overfeeding; but when I saw the complaining, moaning, and grunting patient in my office with the history that her excessive menstruation prevented her from getting well, with her former history of pyosalpinx on the opposite side, I finally decided to do a second laparotomy. Very little was found but the small, cystic, adherent ovary and perimetric adhesions; no pus, no salpingitis; and, in order to clean up the possible tuberculosis which might have caused the hemorrhages, I removed the appendages. Three years passed; her complaints are the same. Menstruation is absent, but she now has her time with the "scars" and the gut.

These scars are like a screw without an end to the thread. We remove a pathological organ. The pain remains. Then we say the scar causes the pain, it has to be removed, and a new laparotomy is proposed. Just as if this could be done without leaving a scar! Here we had not only the scar, but also an exudation around the uterus, which came on slowly and without fever. A surgeon was consulted, who wanted to remove the uterus, but the patient preferred to have a laparotomy done for the third time. But I was satisfied with the second one, during which I paid particular attention to a place to the right and above the navel where she said the pain was worst, so as not to overlook adhesions to the gut or "bands." Nothing of the kind was found, because it was typical hyperesthesia in a hysterical woman. This hyperesthesia extended in deeply, too, so that, on touching here, a board-like contraction of the abdominal walls resulted, accompanied by piercing pain.

Further stigmata were found. The leg was completely anesthetic, of which the patient knew nothing. This explains why she had no sensation of cold. During the greatest cold of the winter she came to the office sparingly dressed and did not complain. Similar conditions are described by Charcot as found in hysterics. There was also present anesthesia of the pharynx, which could be demonstrated in the presence of tonsillitis follicularis; finally, she had anesthesia of the bulbar conjunctiva. She had hyperesthesia of the cervix; the slightest touch with sound or cotton caused complaint. On application of the galvanic current she was relieved and the erosion and the catarrh disappeared. After the laparotomy the patient acted like a maniac (although there was no fever) on account of the hyperesthesia. When all narcotics had failed a firm lecture subdued all pain.

With suggestion and occasionally the galvanic current I now

relieve more than I formerly did by operations or drugs. Recently I advised her to ride the bicycle, and she now feels and eats better than for years, and for the first time in years she came to the office without any complaint. Is it going to last?

*CASE XIV.—Removal of appendages for peritoneal cyst and the pain accompanying it. The pain returns; the scar considered the cause. Severe hysteria with paralysis favorably influenced by cold-water treatment.*

Mrs. X., well known to me for thirteen years; comes from a neurasthenic family; now 46 years old; suffered from great dysmenorrhea. Married when 24 years old; soon after a doubtful abortion was followed by serious inflammation of pelvis, followed by exudate. At that time there was paralysis of the left leg, which was referred to the exudate. Later the paralysis recurred, without any cause, within the pelvis and was typically hysterical in nature. My first call on her was on account of an imaginary pregnancy. She felt life, the abdomen swelled considerably, and she had even colostrum in the breasts. The very small-sized uterus excluded pregnancy, and after my explanation the "life" and size of abdomen soon disappeared. Three years ago she stayed in bed for four and a half months on account of "neuritis" of the left leg. I found, a year later, to the left of the uterus a fluctuating tumor the size of a small fist, which was very sensitive. Occasionally there were severe pains. On examination the tumor ruptured and disappeared, but slowly refilled again. One was justified, under the circumstances, in expecting great benefit from a laparotomy. On performing it we found extensive bilateral perimetritis, perisalpingitis, and periovaritis. Tubes, ovaries, and adhesions formed a bunch on either side, in which we found numerous peritoneal cysts (size of egg). Convalescence after the operation was absolutely normal, and the result appeared very favorable, as the patient soon considered herself free from the pain she had endured for so many years. During convalescence paralysis of the vocal cords appeared and she went to a cold-water cure, from which she was discharged cured after a few weeks. At irregular intervals menstruation appeared, and, she says, with terrible pain. One and a half years after the laparotomy she again began to complain of the left-sided pain and asked for an opinion. A gynecologist found a sensitive scar, and a neurologist spoke of it as a neuroma. Both advised the excision of the swelling in the scar, which was the size of a pigeon's egg. I persisted in my opinion that the pain was due to hysteria, especially since I found a hyperesthetic area to the left on the abdominal wall and in the inguinal region. She was logical enough to see that the excision of the scar would leave a scar, and followed my suggestion. To verify my statement she was taken once more with paralysis of the vocal cords and a herpes over the left inguinal region. Soon, also, a neurotic sciatica appeared, with-

out loss of weight and with symptoms of a neurotic nature, but with paralysis of the leg. On being treated for months with cold baths she gradually learned to walk, and is now, except for occasional paralysis of the vocal cords, tolerably well. The painful scar has not excited her desire for a new laparotomy.

In this case we have to deal again with a visceral hyperesthesia, similar to Landau's case mentioned in the beginning. Both ovaries are sensitive; on firm pressure we find small cysts which would have caused pain in a normal woman, but not such a condition. Here we have terrible paroxysms of pain when they burst, without fever, without any peritoneal irritation. Here we have, after removal of the pathological organs, frightful dysmenorrhea, and scars which produce great pain on the slightest touch. This is evidently a visceral hyperesthesia, and, as mentioned by Charcot, may appear in any internal organ. In Cases 10 and 13 we have also seen visceral hyperesthesias. In one case it was the prolapsed ovary; in the other it changed from the cervix to the adherent ovary, after removal of which the remaining exudate had to furnish the cause. In the next case, in which first a total extirpation, later a laparotomy was done—that is, where everything had been removed, and both operations without any fever—still there appeared painful points in the pelvis.

Such cases can be judged only with great difficulty, if one does not suspect at once the existence of hysteria. With the examination for stigmata matters clear up rapidly, and so the repeated operation can be avoided. I would cite the following case from literature.

Pamard<sup>1</sup> removed in a hysterical woman, for excessive pain, the ovaries, one of which was the size of a hen's egg. Both presented cystic degeneration. After seven months the same difficulty returned. New laparotomy showed omental adhesion, separation of which brought no change.

In the second part of this paper I consider visceral hyperesthesia more in detail.

The pain itself is pre-eminently a chronic sensation. I have seen cases in which it persisted for years. Similar observations have been made by Winscheid.

The sensation is usually described by the patient as a dull burning, exceptionally as sticking. The last assertion was apparently made where we had contracture of the abdominal

<sup>1</sup> Arch. de Gyn., tome xlv., p. 460.

muscle and involvement of the peritoneum (see Part II.). This pain can be distinguished from inflammatory pain by its character, which is described as sticking, cutting, and beating. It differs from it further in that it is not influenced by rest in bed. This is an important point in the history, because as a rule pain coming from a diseased abdominal organ is relieved by rest. Finally—and this can be called typical—the patient states that these sensations grow worse when excited, angry, through fright, etc. The pain must be so specific that the patient can distinguish it frequently from other pains—*e.g.*, menstrual pain, pain of a wound after a laparotomy. One patient had a bubo on the same side and could distinguish the pain separately. As evidence that the pain is in the abdominal skin should be the fact that motion which stretches the skin increases the pain, also extension of arm when tying the hair or hanging curtains. Walking may be painful, as well as lying on the spot; for the same reason plasters irritate. The persistent constipation met with in these patients may be due to the fact that they cannot use the pressure of the abdominal muscles because of the pain caused by their contraction.

Charcot says that frequently the slightest stroking of the skin with the finger is felt as severe pain. I recently saw a puerpera who was to wear an abdominal belt, but she could not bear it on account of pain (hyperesthesia) on her right side. She showed other hysterical stigmata. At her confinement she had extraordinary pain during the second stage, and did not complain about her back, but of her stomach. We expect usually to have a lessening of the pain after complete dilatation of the os. Here it was just the reverse, and I believe that the pain was due to hyperesthesia of the abdominal walls. As mentioned above, the complaint is usually a chronic one. It varies in severity with each provoking agent, but even very acute pain may occur and be of the most severe character. In one such case my further medical advice was discarded because I did not recognize the condition at that time and my narcotics were of no use. She would lie for days in bed suffering from pain and insomnia, and obtained no relief from medicines, suppositories, or morphine hypodermatically. Objectively nothing could be found, and my successor removed the patient from the house and treated her with greater success by bromides and cold sponging.

The natural question is, Why should these particular places in the body be predisposed to these hyperesthesias? Why



always the same spot to the right of the linea alba, a little higher than the ovarian region, and not in the shoulder, the calf of the leg, or other parts of the body? I am sorry to say we do not know.

Gilles de la Tourette says (page 247): “La raison d’être, le pourquoi de la localisation de la grande majorité de ces zones échappe complètement à notre interprétation.”

It is certain that the left side of the body is more subject to anesthesia; and since we are dealing with the same etiological factor in both anesthesia and paresthesia, we are not surprised that hyperesthesia is more prevalent on the right side. In some rare cases local lesions can be connected with a particular cause.

Charcot<sup>1</sup> relates the story of a fisherman who, at the moment of falling into the water, struck the rope edge of his net, which became entangled around his leg so that he was kept under the water for some time. Exactly at the place where the rope was, a hyperesthetic zone developed. Dreams, to which hysterics are very prone, may produce effects by autosuggestion; one dreams, for instance, that she falls out of the window on the left side, and when she wakes up there is a hyperesthesia on that side.

In the history of our cases the assertion frequently occurs that the pain originated from the confinement. It is only a hypothesis if I express my suspicion that hyperesthesia and painful expulsion are dependent on each other. The greater distension of the right side in consequence of more frequent first position may possibly explain the localization on the right side. Against this we have the fact that similar areas occur in men. We really have no explanation, and can say only that we have specially predisposed spots and zones.

According to Charcot the hyperesthetic zones are usually of the size of a two- or five-mark piece. I have seen them often the size of the palm of the hand, and it was difficult to outline the exact size, because on repeated examinations contrary statements were made. They proved that we had to deal with a psychogenetic pain.

Winscheid<sup>2</sup> speaks of the very changeable nature of hysterical anesthesia. Parts of the skin which are markedly hyperesthetic one day may be anesthetic the next day.

<sup>1</sup> “Leçons de Mardi,” 1899, p. 261.

<sup>2</sup> Monatschrift f. Geb. u. Gyn., Bd. ii.

CASE XV.—*Total extirpation per vaginam, with subsequent laparotomy for the removal of an intraligamentous ovarian cyst. Has same pain as before the operation. Hyperesthesia of the scars and of the abdominal walls is relieved by iron and galvanization.*

I give the history verbatim from the patient's report, because it is of interest to see how she describes her symptoms, and it shows the hysterical nature of her pain. I call especial attention to the fact that she remembered the remarks of her physician for years. The hysteric, says Breuer and Freud, suffers from reminiscences.

I call further attention to the recurrence of pain in the right side, notwithstanding all therapeutic measures. It is interesting to see how a journey or a stay in the country—in short, a removal of the patient from her environment—was always of temporary benefit. Of the nineteen closely written pages I give here only the most interesting passages, but these verbatim.

Mrs. S. writes: I am 36 years old. Both of my parents were nervous. At 14 I had my first menstruation. As a girl I was very anemic. At 19 I was married, and confined at 20 for the first time. It was a difficult instrumental labor, with tear of the perineum and cervix. I suffered considerably from prolapsus, leucorrhea, and irregular hemorrhages. Four years ago, because of these symptoms, I went into the hospital, and during the examination I had a sensation as though the inner parts were pulled forward (Muzeux?). I was taken soon with a temperature of 41°, and excessive pain on my left side. I lay a long time with ice on my stomach, and was given morphine for pain, because at that time I already had pain in my right side, just as I have it now, and it went down to the hip and the sacrum. Once I heard the doctor say to the assistants, "It is a most peculiar case of board-like inflammation." At my request I was sent home in the sick-wagon, and there I stayed in bed for six months, being treated with ichthyol, iodine, sitz baths, and iodide of iron [she had a very large exudate, very likely of gonorrheal origin]. I was relieved only after going on a journey with my husband. Two years ago I was taken sick once more. The doctor there was surprised that the other doctor had not applied leeches, and promised to make me well in three days; but the leeching did no good, so I told him next day that I was suffering from pain. Then he told me that I could not have the pain any more. With all that he persuaded me to go into the hospital and applied poultices. There I was examined by a specialist, in his presence, and he said, "Yes, it is just as you said, that it would be best to remove the entire thing." After I was treated in vain with ichthyol I was operated on, the 12th of February [total extirpation per vaginam]. A few days after the operation I complained of pain in the stomach, principally on the right side. The pain in the right side I could distinctly distinguish from pain in the wound.

The doctor always said, "You cannot have any pain," so that I was angry at last, and said, "Why should we have any differences? You always say that I have no pain, and I always say that I have pain; well, then, I have no pain, to please you." After three weeks I was discharged as perfectly well, and I went to Hamburg, although I could hardly walk on account of pain in the right side. I believe it was the scar after the operation, because I have heard often, when one's leg was amputated, that the foot caused pain anyhow. When home my condition got worse, so that I had to hunt up my family physician again. He consulted the specialist, who ordered ichthyol, sitz baths, hot poultices, iodine, and, lastly, mercurial ointment; and when, in my astonishment, I asked why he used such extraordinary means, he said, "In such a severe case as yours we often have to resort to extreme measures."

I have spent five or six months of that time in bed. When I was so far recovered that I could go into the horse-car I went to take sea-salt baths. Later I went to A. During this time I met the doctor who had confined me for the first time. I told him of my long-sufferings, and that the possible cause might be the negligence of the midwife at that time. I received an answer that "the child was inside and that it had to come out." I recovered somewhat, but after being in Hamburg just a short time my condition was the same as before and I had to use morphine again. The pain was always in the right side, in the right leg, so that I could not walk; I had always to drag the right leg. This had been the case since the beginning of my sickness, March, 1896. My physician wanted me to be examined by a specialist, who thought the best thing would be to open the stomach and take out the remaining ovary, but I could not decide for that until April. I was so bad I thought I could not live any longer. I did not retain any food, and had a sensation as though I had a lump in my stomach that came up in the throat. At the next examination of my physician he found a large tumor in my left side. I do not know whether I had excessive pain in the left side. Finally I decided for the operation. On the 12th of April I was examined, without anesthetics, and I heard the remark of the doctor to the nurse, "To the right are bunches the size of eggs"; but when he felt of the left I noticed that he found the right ones.

The operation, laparotomy [removal of a densely adherent intraligamentous cyst with the entire ligament and peritoneum down to the vaginal scar], was done without any mishap. After about four weeks I left the clinic; my recovery was slow, because I always felt pain in the right side, so that I said to my physician that I would very likely have to be again operated on, for the third time. I was sent to the Pines. After six weeks I returned, and I had to go back to the Poliklinik for treatment. Every time I get angry my condition gets worse. A year ago my husband left me, and on Christmas night my child was taken sick and had to be taken to the

hospital in an ambulance. I was then so much excited that my pain grew very bad. I had to go to bed in January for some time, and applied heat. I was sent to the country once more, and I recovered very well in five weeks. After a short time a pain in the right side recurred with severity. I went to the Poliklinik and heard the doctor say to a third person: "In this woman there is nothing left to be removed. The internal organs are all gone." I got sitz baths, but the pain would always come back. I had to go to the clinic and be treated with ichthyol tampons. I was told to come back, but I had a sensation as though the doctors thought I came for my enjoyment.

This is her report. The patient then came to our Poliklinik. She was anemic, had typical hyperesthesia of the right abdominal wall, hyperesthesia of the right side on internal examination. When her skin sensitiveness was tried with a pin she fainted. The pharynx and ocular conjunctiva were anesthetic. Over the spine were painful points. The patient was treated with the galvanic current, as in every case, and in her second week said she was better than ever before. It is now eight weeks since this treatment was begun, and she is much improved. She does not complain of pain. She has cleaned up her own room, which has been an impossibility for her for the past five years. After that her mother was sick and she helped her; she had to clean four rooms. Formerly in washing only a few pairs of stockings she had to put the wash pail on two chairs in front of her and to sit down on another one, in case she should feel bad.

Now she can stand up and do her own washing and that of her child. It is interesting to note that psychological excitement is always active in retarding an improvement. Recently she went to B., met her husband, and found that he wanted to sell out the business she helped to build up; at once the pain in the right side and back returned. She felt as though some one had poured a pail of cold water on her and that she would faint. She was taken to the house and put into bed. After a few séances with the galvanic current and some suggestion, we soon reached a condition similar to the one prior to the excitement.

This recurrence was of short duration, and the good appearance of the woman and the disappearance of her lump force me to believe that we may have a permanent cure. Although she is free from pain, the hyperesthesias are still present.

My endeavor is to get the patient away from her nervous relatives and establish a small business for herself and to direct her attention away from her sensations.

### III. CASES IN WHICH GYNECOLOGICAL LESIONS ARE PRESENT THAT ARE IN DIRECT RELATION TO THE PAIN.

Until now we have seen cases in which there was nothing gynecological to account for the pain. Further, we have noted



cases where there was considerable pathological change in the genitals, for which operations were done without influence on the pain.

It is self-evident that we must have numerous cases in which there are minor conditions in connection with the sensation of pain, and by removal of these the pain may also be removed. These cases are of the greatest interest to gynecologists. Experience teaches that the connection between local disease and hysterical pain is frequently not a direct one, but it may be indirect in that the local suffering is a provoking agent for true hysteria. Let us remove the local trouble; the patient will profit by it, even if the hyperesthetic area continues. The main object of this work is to call attention to the importance of these hyperesthesias, so that we may not interpret them falsely or be led by their presence to renewed gynecological treatment.

A short examination on a neurological basis in doubtful cases, and consultation with a neurologist, will always clear the case. Furthermore, it is important to know that these patients can be relieved of the pain, and that the hysteria can be brought back within the limits of normal hysteria and so be without complaint.

*CASE XVI.—Pain in right side is referred to a retroflexion of uterus and endometritis, but persists after removing the local trouble. Hyperesthesia of the abdominal wall disappears on application of galvanic current.*

Mrs. H., 29 years old. First menstruated at 12, regular and painless; one living child 6 years of age; since then several abortions, last one a year ago. Complains of pain in right side, especially while at work and during menstruation. The pain began after the confinement six years ago, but has increased in severity since the last abortion. She has leucorrhea, soreness, excessive menstruation.

Examination shows endometritis, erosion, retroflexed uterus; appendages normal. Was curetted a year ago for fungous endometritis; reposition of uterus; Hodge pessary. For a time she was satisfied with the result of the treatment, but came back after a few months with complaints of pain in the right side, which is worse when lifting, stooping, or at night in bed. Menstruation normal; erosions healed; no leucorrhea; uterus in normal position, retained by pessary. Hyperesthetic zone to the right above the symphysis, size of a hand. Anesthesia of pharynx and bulbar conjunctiva. Relates now that she was treated eighty-two times with electricity, when a girl, for St. Vitus' dance. Ten years ago she struck her head against a window; since then has circumscribed pain in head, which is markedly worse after excitement (clavus).

After a few applications of the constant current to the hyperesthetic areas she asserts that her pain is gone and that she can work as in former years. Since then a year has passed. I see her occasionally, as she comes to have her pessary cleaned and reports again she feels well, can work, and the pain is gone.

CASE XVII.—*Retroflexion of uterus. Pain in right lower abdomen seems to depend on it. A hysterical hyperesthesia is favorably influenced by treatment.*

Mrs. J., 23 years old. First menstruated at 12, painful; two living children, last one two years ago; comes from hemopathic family; suffers much from migraine. Comes on account of a dull pain in right abdomen, which she has noticed since her last confinement. The pain extends down to the right knee and into the toes. It is dependent on psychical excitement. Has backache, weakness when standing or walking; retroflexed movable uterus.

After reposition of uterus and the introduction of a pessary the pain remains about the same. Nothing abnormal in the genitals. Hyperesthesia of right abdominal region; anesthesia of pharynx and conjunctiva bulbi; painful pressure points over the sacrum and at exit of left sciatic nerve.

Soon after the first application of the galvanic current she thought she felt better. After four visits she was entirely relieved. Just as phenomenal and impressive as the symptoms of hysteria are, so often are the therapeutic effects. This patient suffered four years from pain; was treated with the galvanic current four times and entirely cured. It is now half a year since the treatment. I saw her recently and she said that her pain had not returned.

CASE XVIII.—*Because of pain in the left side and a retroflexion a vaginofixation was done. The patient asserts that the operation has been of no use. The pain remains the same. Cured by application of the constant current.*

Mrs. W., 32 years old. First menstruated at 16; duration eight days. Married seven years ago; never bore any children. Two and a half years ago operated on, on account of pain in the lower part of abdomen and displacement of uterus. Had fever after the operation for three weeks and lay at her house for some time with ice on an inflamed gland (bubo).

The pain of inflammation at that time she could distinctly distinguish from her former pain. The latter was absolutely not influenced by the operation. These pains bring the patient to me. She believes they are worse than before fixing the uterus. The surgeon who operated used many remedies for the pain, and said at last it must be of a nervous character. The neurologist who was consulted said that it must come from the deeper parts that could not be reached without the laparotomy. Curetting was proposed. She was of florid appearance, corpulent and difficult to examine, and of hysteria nothing could be made out. She had a vaginal fixation scar. On com-

bined examination she complained of sticking pain in the left side. The abdominal muscles contracted so that we had the sensation of an exudate. This sensation of resistance was so marked that I treated her with iodine applications, ichthyol tampons, and sitz baths. The absolute failure of the remedies, and particularly of the sixteen sea salt baths, surprised me. Now I examined her for hyperesthesias of the abdominal walls, and got from the patient the typical reply: "That is my pain." I pinched the skin to the right and the left. Great was the astonishment, and especially the joy, of the patient when, immediately after the first application of the galvanic current, the pain improved materially. After a treatment of two or three weeks it disappeared, and the patient, when she came to see me after three-quarters of a year, could hardly find words to thank me for freeing her from the pain from which she had suffered for years without any relief after operation.

CASE XIX.—*The pains are referred to chronic metritis and endometritis. After curetting and failure of all therapeutic measures, we find the seat of abnormal sensation in the abdominal skin. Favorably influenced by galvanic current.*

Mrs. H., 34 years of age. First menstruation at 14; profuse and painful. Four children without assistance, childbirth normal. Then she had an abortion, followed by sepsis. She was in bed then for three-quarters of a year, and was cut all over the body (pyemic abscesses). The second abortion brought the patient to me at the Poliklinik three months ago. She complained of backache, whites, excessive menstruation, heaviness in the stomach, pains in the region of the intercostal nerves. Examination showed retroflexion of the uterus, laceration of the cervix to the right, purulent leucorrhea, and intercostal neuralgia. On local application of ichthyol and of sitz baths, the difficulty improved and the patient stayed away for three years. The consequence of another abortion brought her back to us (provoking agent). She bled three weeks incessantly, and complained of pain in the left side of abdomen and of lumbar pain. We treated her now for three months with all sorts of remedies (cold compresses, sitz baths, chloroform liniment, massage, had her give up using the sewing machine, etc.), but without any results as to her pain. The uterus was still fixed and the menstruation very profuse. We therefore curetted her. Nothing was found in the uterus; the operation was more unfavorable than beneficial. We then first looked for hyperesthetic zones, and pinching to the right and the left showed the marked difference of sensitiveness. To the left she flinches and moans; besides there is an anesthesia of the pharynx and ocular conjunctiva. Iron medication and the galvanic current brought rapid relief and speedy recovery.

CASE XX.—*Unsuccessful gynecological treatment for pains; typical skin hyperesthesia, improved by the galvanic current, cured by bicycle-riding.*

Mrs. X., age 27. First menstruation at 17, irregular, with

headache. Wore a pessary because of pain in the abdomen which radiated into the leg. When I removed this pessary a few months later the patient did not notice any difference in her condition. She came back, after half a year, with dysmenorrhea and leucorrhea, pains in the right side of the stomach, in the lumbar region to the right, headache, backache, erosion of the os, endometritis. Cured. As an exciting agent in this case we found that the patient was afraid that her friends might learn of an occurrence in her former life which she tried to keep secret. Everything centred around this point. With the cure of the endometritis the patient's suffering was not relieved. The leucorrhea was gone, but everything else remained as formerly. General massage had no influence. The constant moaning and pain led to an examination for stigmata, for even this patient made absolutely no hysterical impression. The examination was surprising. We found anesthesia of the pharynx and ocular conjunctiva, anesthetic zones on the outside of the left thigh, on the skin to the left of the umbilicus, on the right upper arm, on the mucous membrane of the left cheek, left side of the scalp, and nasal mucosa. On the right side, extending along the lower border of the ribs, the skin is also anesthetic; here she complains of deep-seated pain (pleuralgia), which she considers to be the first symptom of consumption. To the right on the abdominal skin is a hyperesthetic zone, which is favorably influenced by the galvanic current. This is also the case with the pleuralgia. She was cured only when I recommended her bicycle-riding. A quarter of a year later she called on me in a bicycle costume, free from all difficulties, to show me a spot on the knee she had injured.

*CASE XXI.—Hyperesthesia of the abdominal walls complicated with small cystic tumor of the same side.*

Mrs. X., age 40. I have known her since she was 12 years old. She was anemic when a young girl. Menstruated but rarely. Gave birth to two children. Had one abortion. In connection with the last one there was a large serous perimetritic exudate, which perforated and discharged through the bowel. Five years later there was a small cystic tumor at the junction of the left tube with the uterus, which reached during the following month to the size of a goose egg and was punctured through the vagina. She was fairly well for the next four years. She was repeatedly examined and no tumor found. Four years later she presented herself with pain to the left of the umbilicus, which could be traced to hyperesthesia of the abdominal walls. On lifting up a fold of the skin the patient moaned and described the sensation as her pain. At this time no tumor could be found. The pain was considerably relieved by the galvanic current. About half a year later, when the hyperesthesia disappeared and the pain was almost entirely gone, a renewed examination proved that a small tumor, very likely a peritoneal cyst, had developed, which was similar to the one of four years before, and was removed



in the same way. One and one-half years after, the tumor had not reformed ; she still had occasional burning pain on the left side, especially at the time of her menstruation, but it was never so severe that medical aid was required. She had taken Blaud's pills and had eaten well, and was much improved. The first recurrence of the pain was brought about by the emotion caused by the death of her husband. This case is especially interesting, because there was undoubtedly a small sensitive tumor which was by no means the cause of all the trouble the patient presented. The pain disappeared almost entirely under galvanic treatment, while the tumor was growing, and when the tumor was removed by puncture, and did not recur for the past year and a half. She still occasionally has her old pains; the hyperesthesia is absent. Conjunctivæ are anesthetic, pharynx normal.

In this case a surgeon would very likely, considering the history of repeated puncture and the persistent pain, have performed laparotomy ; and the internalist, just missing the relationship between the pain and the disappearance of the tumor, would have looked for neuralgia. The internalists and also surgeons have all cause to remember these hyperesthesias and to guard against any mistake. We have repeatedly mentioned that Sticker calls attention to the importance of hysterical hyperesthesia of the stomach, and has given an example of it. Sticker reminds us that hysteria, to the casual observer, "is apt to take the semblance of an ulcer of the stomach, a heart lesion, or Basedow's disease."

Winscheid emphasizes the risk of mistaking intercostal and pleural affections for hyperesthetic zones lying along the course of the ribs. Rumpf, guided by his large experience in this field, tells me that the skin hyperesthesias in the lower abdominal regions, and especially to the right, are known to him, because they frequently are mistaken for perityphlitis, and he also says that he does not know of any publication on the subject outside of Sticker's work. If an internalist overlooks the hysterical nature of a disease there are not the serious consequences that follow when a surgeon errs. Brody cites three cases in which the hip joint was exarticulated, and on suspicion of Pott's disease hysteria patients have been kept in bed for years and treated with moxa and hot irons, only because they had a hyperesthesia of the skin covering the spinal cord. In renal surgery the view of Landau must be accepted that many hysterics with movable kidney have the organ anchored or even extirpated. Furthermore, knee joints are frequently punctured without any pathological findings.

Trigeminous resections have been made in hysterical head cases. In short, more or less serious operations have been undertaken which would not have been done if the patients had been previously examined for stigmata, and surgery had in the meantime endeavored to guard against such mistakes by coining the names pseudo-Pott's disease and hysterical coxalgia. The surgical text books now have special chapters on this subject, and gynecology ought to have the same in reference to hyperesthesias of the abdominal walls, but we find nothing concerning this in gynecological text and hand books. At least I have hunted for such literature unsuccessfully. A special chapter on hysteria we find only in Fritsch's book, and here Charcot's stigmata are described. He also speaks of hemicrania, hyperesthesia of the scalp, the joints, intercostal neuralgia, muscular neuralgia, neck and shoulder pains, and sensitiveness of single vertebræ, coccygodynia, sciatica, and lumbar neuralgia.

I have looked over all the year books of Frommel, under all headings, and do not find anything that I could use as literature. In a lecture on neuroses of the female genital organs Olshausen<sup>1</sup> mentions hysteria in one place only, and that when talking about ovarian neuralgia (see second part of this paper). Even in the French literature, where one would expect that the teachings of Charcot would have had a beneficial influence on gynecology, I find<sup>2</sup> very little about this. Landau<sup>3</sup> deserves the credit of having first called attention to hysterical pain, but his publication has not met with the attention it deserves. Besides Landau's work I find only two small pamphlets by Winscheid<sup>4</sup> on hysterical pains. Here he calls attention to the pain in the abdomen below and above the navel and to the pain in the inguinal fold and the adjoining parts of the thigh. He says that he could find nothing in the text books about these localizations. I did not find these publications of Winscheid's until my work was almost completed. I am sorry about this, as in treating my patients I should have paid more attention to certain points that he lays stress on, especially on the increase of the patellar reflex and the artificial excitability of the ovaries in hysterics. My material being

<sup>1</sup> Zeitschrift f. Geb. und Gyn., No. 22.

<sup>2</sup> Auvard's "Douleurs d'Origine génitale chez la Femme." Arch. de Tocol., April, 1896.

<sup>3</sup> By his case mentioned in the beginning of this paper.

<sup>4</sup> Monatsschr. f. Geb. und Gyn., Bd. ii.

purely gynecological, and that of Winscheid purely neurological, they are therefore materially different, and Winscheid should have accepted my work as a desirable addition to our knowledge in this field. I would mention in this place, as I have said in the beginning of this paper, that my attention was called spontaneously to the significance of the hyperesthetic zones of the abdominal skin, and I have sought in vain in gynecological writings for an explanation of my findings. Seven years ago I spoke to Dr. A. Säger on this subject and told him of a few of my experiences. The use of the galvanic current was also my own idea. I used it where all remedies had failed and when my apparatus was accidentally out of order, and I succeeded in getting only from three to six milliamperes. I observed that just this strength of the current could be used to better effect than the stronger currents, which of themselves caused pain. I will now continue the enumeration of cases in which hyperesthesia was coincident with gynecological disorder.

CASE XXII.—*Hyperesthesia of the abdominal wall of the left side, dependent on a retroflexed uterus. Transient improvement after vaginal fixation. Hyperesthesia of the skin and contractions of the abdominal muscles. Phantom tumor. Pain favorably influenced by the galvanic current.*

Mrs. M., 22 years old; menstruation at 15, painful and irregular. Was very chlorotic as a girl. Had severe attack of typhoid five years ago (*agent provocateur*). Vaginal fixation was done by some one, one and a half years ago, for severe pain and constipation. Half a year after the operation the pain improved, but now it has returned gradually and is worse than before. The family physician, who has considerable dexterity in gynecological examinations, thought he could feel a distinctly painful tumor on the left side two months ago, but on closer examination nothing of the kind can be found (phantom tumor). The patient is sent to me because of pain on the left side. She designates it as a constant burning, especially severe on exertion and at the time of menstruation. She is constipated, and all sorts of remedies are used for it. She has typical hyperesthesia of the skin to the left of the umbilicus down to Poupert's ligament. When the skin over the abdominal muscles is touched or pressed they contract, so that there is a distinct sensation of a thickening or tumor. She has a vaginal fixation scar. The uterus is retroflexed and retroverted. The retrouterine folds are shortened and sensitive. The bulbar conjunctiva and even the cornea are anesthetic, as well as the pharynx. Rapid improvement of the patient after the use of the galvanic current. Bowels move spontaneously without laxatives. I saw the patient eighteen months after this treat-

ment, and she told me the pain to the left was occasionally present, but was never so severe as to require treatment. The constipation has not returned.

CASE XXIII.—*Has distinct agents provocateurs. Hyperesthetic zone to the right. Excessive pain. After removal of the same by galvanic treatment, she had to be curetted because of irregular bleeding from hyperplastic endometritis. In this case we reverse the treatment. First we remove the pain and then relieve her gynecological trouble. Proved that each affection was from an independent cause.*

Mrs. X., widow, 32 years old. First menstruation at 15, regular, with severe pain. Had one child thirteen years ago; three abortions, two since the last confinement. Since the last miscarriage, seven years ago, menstruation has been profuse, in clots, and painful. Her mother was very nervous, also her grandmother. When her husband, who was thirty-five years older than she, died a year and a half ago, her financial situation became very complicated and uncertain (*agent provocateur*, psychical trauma). Complains constantly of pain in the right side, different from that at menstruation. It is a burning, and dependent on psychical excitement. The uterus is enlarged. The combined examination on the right side is made difficult by hyperesthesia of the abdominal walls, because on pressure the muscles contract at once. Anesthesia of the cornea, conjunctiva bulbi, pharynx, and mucous membrane of the mouth and of the nose. The hands of the patient are cold, but she does not have the sensation of cold. On examination with a pin the hands, forearms, feet, and legs prove to be entirely analgesic. Patient knows nothing about this abnormality. She does not appear to be hysterical. The hyperesthesia is relieved after a few applications of the constant current, but it is evident now that we have to treat her pelvic trouble. On account of the irregular and profuse menstruation, the thickened endometrium was removed with the curette. To keep away the sensation of fainting, she used to take large quantities of cognac at night; she drank Würzburger beer in order to go to sleep. The effect of the alcohol attracted attention in this particular direction. She now takes syrup of the hypophosphites, is abstinent, and rides a bicycle. Her relatives could not understand how such a severely suffering woman could ride a bicycle, but it agrees with her very well. She learned easily and finds great pleasure in it. Does not now complain of pain.

In Case 24 I could find no other signs of hysteria than hyperesthesia and painful pressure points in the back, which were quickly relieved by the galvanic current. Looking over the history of the patient, whom I have known for the past ten years, I believe that I would have relieved her suffering had I understood her case. It is possible that stigmata may



be absent just at the time when we are looking for them. Dr. A. Sänger states that they disappear very quickly, only to appear again. They are supposed to be absent when hysteria is relieved, to reappear when new *agents provocateurs* act. In this particular case Dr. Sänger found limitation of the field of vision while her daughter was being treated by him for grand hysteria.

CASE XXIV.—Mrs. X., 40 years old. First menstruation at 13, irregular, with pain; inclination to fainting. Gave birth to five living full-term children. At the first confinement, by forceps, her cervix was deeply torn. When I saw her she had pain in the right side, extending into the thigh, appearing principally at night and disturbing her sleep. There was a suspicion of hysteria, because of hyperesthesia. There is leucorrhea and backache. There was a deep cervical tear, a small cervical polyp, a retroflexed uterus, and endometritis. The erosions and the leucorrhea were soon cured by removal of the polypi and local treatment with pyroligneous acid, but the pain persisted. It improved occasionally by massage, but was not influenced by belladonna plasters and other remedies. I had hoped to relieve the woman by Emmet's operation. It was performed, but the pain persisted. The pains were not influenced by ichthyol tampons and the wearing of a pessary. I had not seen the patient for a number of years until recently, when she came to me again for a pain in the right side. I now found the hyperesthesia and the pseudo-ovarian zone to the right, and on pinching the skin she designated without hesitation this sensation as her long-lasting pain. This was relieved by the usual treatment. In this patient the pharyngeal reflex was present and the conjunctivæ were not anesthetic. A few sensitive places on the back were the only abnormal signs I could find.

CASE XXV.—*Hyperesthesia of the abdominal skin on the right side was attributed by another physician to inflammation; was then treated with a pessary; laparotomy advised. The pain and the persistent constipation disappear after galvanic treatment and iron medication.*

Mrs. X., 28 years old. First menstruated at 15, regular, painful, excessive. Married three years; no children. Suffers from migraine. Says that she has been treated for pain in the right side. Her physician, a specialist, considered the pain at first due to an inflammation, then to a displacement of the uterus. When it did not disappear on the introduction of a pessary and other therapeutic measures, he said that if the pain persisted an abdominal section would be necessary to relieve her. She comes to me, not on account of her sterility, but for a persistent pain in her right side, increased by walking and exercise of any kind. It is present at night, and she can therefore not lie on the right side. Any excitement makes it

more severe. She is constipated. For the past three years she has had a bad digestion and anemia. Uterus is normally placed; the external os is the size of a pinhead, right perimetrium slightly thickened. Hyperesthesia of the skin from the right of the umbilicus down to Poupart's ligament. The conjunctivæ are anesthetic. At the end of the last rib on the right side is a spot sensitive to pressure. After the first application of the galvanic current the patient says that she has not had as little pain for months. In the course of the treatment the pain disappeared entirely. Once she grew slightly worse when she took a relative of hers to an aurist; while she was waiting in the reception room she suddenly heard some one cry in narcosis. She was frightened and felt the pain at once to the right in the abdomen. Several months have passed now since the treatment and the result remains the same. She went on a sea voyage with her husband and was entirely free from pain. She can walk quite a distance without pain and does not notice any on climbing stairs. The constipation has disappeared.

CASE XXVI.—*The principal complaint is a glandular endometritis. After recovery from it there is still persistent burning pain to the right, hyperesthesia of the abdominal skin, and other stigmata. Immediate relief through galvanization and iron medication.*

Mrs. X., 30 years old. Menstruation at 13, irregular, frequent, of long duration, profuse, and very painful. Chlorotic when a girl. Menstruation stayed away once for half a year. She was treated for rheumatic headaches and migraine in a massage institute, for neuralgia by a neurologist, and for insufficiency of the eye muscles and limitation of the field of vision by an oculist. She wears prismatic glasses. Met with an accident while riding a bicycle: the bar of her bicycle was forced against the left side of her abdomen (*agent provocateur*). Since then she has had pain. Soon after that she had a serious phlegmon in the neck, which necessitated a large incision. She was treated at that time for erosion of the cervix. Soon after that, when I saw her, she had no erosion. The uterus was distinctly enlarged and sensitive, so that I made a diagnosis of endometritis. Four months later the patient came to me for a purulent flow and clots at menstruation of seven days' duration. She was curetted and a considerable amount of thickened mucosa removed (glandular endometritis). She was only slightly benefited, and after a few months she was curetted again without an anesthetic, and but little removed this time. After a six months' journey she returned to me again, still complaining of pain in the right side. Sea-salt baths were without any effect. The condition of affairs led me to suspect hysteria. The patient is a calm, composed woman, but she is anemic, and a distinct hyperesthetic zone can be made out to the left. The patient is surprised that I discovered the pain when pinching the abdominal skin. There is anesthesia of the

conjunctiva and pharynx, epigastralgia, painful pressure points at the end of the last left rib, and right-sided migraine. Sensitiveness over the scalp is reduced. Every psychical excitement increases the pain in the left side of abdomen, the pain in the region of the stomach and the left lower rib, as well as the migraine. When, for example, the patient's sister died unexpectedly all this reappeared with great severity. The first séance with the galvanic current relieved the pain at once. By her frequent visits to the doctor she has grown to be very critical, is very sceptical about entering on a new treatment, and does not believe that there will be any success. While I relieved by galvanization and iron the hyperesthesia of the abdominal walls and the pain radiating from it, I was not successful with the migraine and other slight difficulties.

*CASE XXVII.—Severe dysmenorrhea, endometritis, pain persistent after curetting, hyperesthetic zone to the right of umbilicus. Sleeplessness, not yielding to any narcotic, was favorably influenced by the galvanic current, but the result was not lasting.*

Mrs. X., 23 years old. An eight-months child. Was weakly during her first years of life. Father highly nervous. Patient was very much petted. First menstruation at 19 and without pain. Since her nineteenth year she has had increasing pain before and during the flow, accompanied by headache, sleeplessness, and loss of appetite. The dysmenorrhea the last time was so excessive that the patient had to stay in bed for eight days and the entire house was held in alarm. There was also constant pain in the right side of the abdomen. Considerable purulent fluor. Anemic girl. Virgin. Because of the history of painful menstruation, which had resisted all remedies of the family physician, and especially because of the purulent fluor and the pain in the right ovarian region, an examination was made under narcosis. We found an erosion (with intact hymen), a purulent cervical catarrh, and endometritis. Curetting was therefore done (endometritis interstitialis and glandularis). The behavior of the patient after this operation was such that we regarded the endometritis as unimportant and recognized the hysteria as the principal trouble. She had the same pain on the right side as before. The insomnia, which was treated with extreme doses of bromide, sulfonal, and morphine, persisted until she was told that it did not amount to anything and would disappear by itself. The menstruation which appeared in the meantime was described as just as painful as before the operation. Her constipation disappeared when she was told that her intestines, heart, and lungs would do their required work without assistance if they were not interfered with. This suggestion was supported by massage. I found on the right side, from the ovarian region to the umbilicus, an exceedingly hyperesthetic zone. When the massaging hand pressed over this region she designated it as the site of her constant right-side pain, rolled her eyes, puckered her lips, and presented

a typical hysterical face (*ovarie*). After two or three séances with the galvanic current the pain improved considerably. She was put on Bland's pills and left for the country. The next menstruation was slightly less painful, and now, after eight weeks, it is considerably improved. She has gained in weight, sleeps regularly, has splendid digestion, and does not complain of pain in her abdominal walls. According to the latest report, the success in this case was not lasting. The pain at menstruation and the pain in the abdominal wall recurred with the old severity. I have to mention here that neither the house physician nor myself was successful in carrying out a rational psychical treatment. In this very much spoiled young girl my suggestion that when she improved slightly she should take bicycle lessons was not carried out. We were not even able to meet the father in order to talk over the condition of his daughter with him. I was enabled to persuade her to return to me only two or three times for galvanization, and have not seen her since.

If, finally, in the consideration of these hyperesthesias of the abdominal walls, I enter rather minutely into therapeutics, I do so, not in order to copy everything known from the text books, but to give my personal experience.

Sänger, with whom I have treated a few cases, believes that I have special good fortune with hysterics, and this has induced me to state my methods and results. First of all, the physician must be convinced that *he can cure the patient*; for if he proceeds with the conviction that a hysteric will remain hysterical, he will relieve her present trouble only to have it recur in some other region of the body. I think the histories I have cited prove that we can relieve these patients and reduce their active hysteria to "normal hysteria." At any rate, we can banish pain for years and make happy many suffering women.

I come now to the special therapeutic remedies. We will first consider the galvanic current in its special relation to the hyperesthesias. This may be a purely suggestive treatment, but I believe in its specific virtue and refer to the following facts.

*First*, it is only very weak currents that are of value. A stronger galvanic current irritates and increases the pain. It is the same with the application of the faradic current, for the latter irritates, while I find an explanation for my success in the sedative action of the anode. I expressed this idea in consulting with Sängcr, and it agrees with the experiences of



Boettiger,<sup>1</sup> Landau,<sup>2</sup> Winscheid,<sup>3</sup> and Auvard,<sup>4</sup> all of whom hold the same opinion.

*Second*, we find regularly that almost all hyperesthetic areas are comparatively anesthetic to the galvanic current. For instance, if on the healthy side a current of six milampères is felt, we have to use a greater current on the hyperesthetic side to cause sensation. This is the more remarkable as this area is very sensitive to touch, pressure, prick of a needle, and other things. We frequently hear the remark that for a long time after the local application of the current the sensation remains in the skin as though the current were still acting.

*Third*, the currents used are so weak that the patient can hardly feel them, or does not feel them at all. The imposing or suggestive factor is, therefore, absent in this treatment. I have been successful in cases where I did not use this current as a remedial agent, but employed it in the same way under the pretence of using it in order to examine the nerves.

*Fourth*, according to Pitres, the hysterical zones lose their temporary irritability if the patient is put on an isolated stool and is allowed to be under the influence of static electricity for some time.

*We must admit that in all these treatments the influence of suggestion cannot be excluded.* Yet, if suggestion in this form has such an extraordinary usefulness, it deserves to be employed. Electricity is an agent to prove with, whether we accept its suggestive or its specific action. We have positive results with electrotherapeutics, notwithstanding the pessimism of Möbius.

Now we come to the next therapeutic factor—"suggestion." This is without a doubt the first and the most important, indeed the sovereign remedy.

The "suggestion" we find in the personality of the doctor and in his behavior toward the patient. By this only can we understand the success of charlatans and quacks, who have so many clients, even among sensible and intelligent people. It can be explained only by the fact that we have an innumerable number of normal hysterics. I will briefly mention a similar result from my own practice. The patient, an educated lady,

<sup>1</sup> "Mittheilungen aus d. Grenzgebiet der Med. u. Chir.," Bd. ii., p. 795.

<sup>2</sup> Zeitschr. f. Klin. Med., Bd. vi., p. 452.

<sup>3</sup> Monatsschr. f. Geb. u. Gyn., Bd. ii.

<sup>4</sup> Archives de Tocologie, xxiii.

robust and active, was without any trace of hysteria; indeed, she was so healthy that she did not complain of anything. Becoming pregnant, she suffered from an excessive flow of saliva, using daily dozens of handkerchiefs. While she was talking to me the thin saliva flowed from her mouth. She became thin, sleepless, and not able to follow her work. This brought her to me. I tried everything imaginable—bromides, belladonna, quinine, opium, the faradic and the galvanic current—in short, everything I knew of, without any result. I left town and she went to a quack. She told him of her condition, and he spoke abusively and roughly to her. He told her that it was a very foolish habit, that it was most ridiculous, and added in a stentorian voice that if she didn't help herself no man could help her. The lady left his house speechless with indignation, but the ptyalism left her from that very moment.

But it is not right to believe that we can treat all cases in a similar manner. Constant advice that they should fight against their trouble, that they should not regard it, discourages most patients, because they have tried to fight against it a long time and know that it is useless. We should treat them in an entirely different manner. There is an indirect method, to which my attention was called by Sanger, by which we do not recall her former battles with herself; in fact, we do not appeal to her will again. We simply say, "Do not work against it, it is useless; when you improve it will come right by itself."

It is also improper to ask the patient at each visit how she feels. Such questions have been put to her so frequently that she begins to complain habitually on being asked them. She also begins to mistrust, if the doctor has first to ask, "How are you?" that he may have some doubt of his cure. It is to be considered as absolutely certain that she will be relieved, and this conviction the patient loses if the conventional question is asked, "How are you?"

When a slight benefit is noted, and only then, can we appeal to her will power with some result, but we will frequently hear the answer, "I have already tried that so often." Just these patients will try to impress upon us that they have an especially strong will power and that they do not easily give up. Those about them have to be instructed; the patients have to learn how to subdue their sensations, get them under control, and hide them from themselves. If this point is reached, and no one talks of them to themselves, they think a great deal less

about their ills. All this by itself is suggestive therapy; and if the patient has to come to the doctor's office, the idea that she has to come to the physician, and not the physician to visit her, is frequently the first link in the chain of later results. In cases where all this cannot be accomplished I prefer to give up treatment. In such cases we do not accomplish anything, and one is not the proper physician for the patient. Even Charcot has told hysterical patients to go to Lourdes when he could not effect a cure by his "suggestions." Under these conditions an attentive and careful going into the history and a careful examination may clear the way to successful psychical treatment. I have frequently wondered at the saying of some physicians when they spoke of their "disagreeable hysterical patients." No human being considers himself to be suffering from pain just for pleasure. I therefore enter carefully on every single complaint, even if their enumeration takes considerable time, and I am under the impression that this is part of my success in such patients. In general too much stress is laid to-day on the word "suggestion"; psychical influence designates much more and is much more correct. Boettiger says: "One would believe that it is only necessary for the physician to sit in front of the patient and tell her something"; and Goldscheider speaks of that old art, which is now praised as something new, and is marked and defined by the name of "treatment by suggestion."

The third therapeutic means is removal from home and family and treatment in an institution. There are families in which the members are constantly criticising each other, are excited and quarrelsome. In others they constantly sit together, pitying each other, and in attempting great kindness give in to every whim and every weakness.

In both of these conditions hysteria may be aggravated. This holds good especially where there are nervous relatives. I had occasion to treat two daughters of a hysterical mother, who was constantly in bed. One had a myomotomy done, and imagined that she could sleep only under an expanded umbrella; she brought it with her to the clinic. The other said that she was suffering from heart trouble and could not ascend any stairs, was troubled at night with frightful apparitions: but she had no heart disease. I treated both of them, and relieved them as long as they could be kept from the too solicitous care of the mother. The Weir Mitchell-Playfair cures belong here (rest and food cure), which might be useful where

there is a decided emaciation; however, I believe less in excessive nutrition—this will follow later of itself—than in the efficacy of isolation and thorough discipline of the patient, and the necessity of obeying the will of another. The cold-water cure acts in a similar way in full-blooded people. It is important to remove the exciting cause by removing the gynecological condition, but no promise should be made that the hysteria will be removed at the same time. Certainly some operations act through their moral, mental, psychical influence, *i.e.*, “suggestively.” We saw this, for instance, in Case 14, where on removal of the peritoneal cysts the pain suddenly disappeared, to recur again within a few months in the shape of pain in the scars. We can easily go wrong if we suggest to ourselves that every pathological change in the genitals must be an exciting cause and that the patient should be operated upon to remove it. Landau<sup>1</sup> says: “From a diagnostic and therapeutic standpoint, the interpretation and localization of hysterical pain requires our special attention, especially if it be within the domain of the female pelvic organs. The difficulty arises in that many pathological conditions (changes of the position of the uterus, inflammation of the uterus and its adnexa) are accompanied by similar sensations of pain, which, according to the standpoint of the examiner, can be interpreted as sources of the pending disease; since it lies in the nature of things that where pain is complained of, coincident pathological changes are looked upon as the cause of the pain. And similar diseases are then assumed on the basis of analogical conclusions whenever a painful sensation happens to coexist with the pain caused by an organic complaint.” This source of error will always remain, but it is quite sufficient to call attention to the frequent occurrence of hyperesthesia in order to make it less formidable. In this respect it is important, in order to enable him to judge of his case, for the physician himself to make an examination under an anesthetic. It clears up many cases, definitely unmasks phantom tumors, and leads to a correct diagnosis of hysteria. It is especially useful if the complaint is out of proportion to the pathological finding, but even for pure hysteria the narcosis is of some use. If one can, after such an examination, positively tell the patient that there is nothing to be found, that she is perfectly normal in the pelvis, we frequently find that things have changed like magic. The patients do not consider their sensations, but bow

<sup>1</sup> Med. Wochenschr., 1884, p. 263.



before the authority of the careful examination in narcosis. We must also not forget that the genitals are not the only region of exciting causes, but that, on the contrary, the weakened general organism may be the principal source. It is much more difficult to reach the exciting causes if they are in the form of worry and the aggravation of domestic difficulties; against these occupation acts best. It is not necessary to give precise advice or orders. We should make general suggestions. Change in the mode of living is frequently favorable, and some patients who are made to get up at seven in place of nine o'clock, and go out for a walk in all kinds of weather, feel much better. Their sleep is much quieter the next night. They dream less, perhaps because the prolonged horizontal position causes hyperemia of the brain. Bicycle-riding is of great use. A great number of complaining patients who came to my office stayed away when they took to the bicycle, and it is remarkable how frequently those whom we trusted least in their bodily strength show themselves as the most active devotees of that sport. In winter I recommend indoor gymnastics, long walks, and ice-skating. Various other occupations are of considerable use, as learning photography, the translation of a book, the mastery of the typewriter or stenography, or the study of a foreign language. In short, advise anything that will excite a new interest for the patient.

If we let suggestion at the same time act by saying that if they conquer difficulties in their work they will learn themselves how to find new joy in life, we frequently reach surprising cures. Occasionally a childless couple have been relieved by adopting a child.

Lastly, we have to speak of drugs, of which the most important is iron. Bland's pill should be taken persistently for four months, and, after an interval, as long again. We cannot lay too much emphasis on the fact that chlorosis or anemia is a fertile field in which hysteria occurs, and that we always strike the right path when an energetic iron medication is used. Occasionally the iron may be combined with quinine and nuxvomica, or alternated with the syrup of the hypophosphites, since all alcoholics are forbidden. Narcotics are of very little use in hysterical pain, so much so that from this fact we are frequently led to make a diagnosis of hysteria. Valerian and asafetida are useful in convulsive forms of hysteria.

(To be continued.)

THE CLINICAL HISTORY OF UTERINE POLYPS.<sup>1</sup>

BY

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(With plate and three illustrations.)

THERE is a widespread impression among general practitioners that a uterine polyp is a comparatively simple condition, of frequent occurrence, easily recognized, and always requiring the same treatment—avulsion. Nothing, however, is further from the truth. There is scarcely another disease of women showing such a variety in clinical history, termination, and necessary treatment.

In looking over my case books for the last eighteen months I find an unusual number of intrauterine tumors recorded, showing to a marked degree the variety which these growths exhibit in their clinical history. It is convenient, in the analysis and study of these cases, to divide them under five sub-heads.

(1) *Complete Myxomatous Degeneration of a Large Sub-mucous Myoma; Abdominal Hysterectomy.*—This woman was married, was about 35 years of age, and had never been pregnant. Two years before my first examination she had begun to exhibit uterine symptoms, which increased very rapidly in severity. There was great pain due to the uterine distension, and profuse hemorrhage, with constant discharge of what she described as a watery fluid. An examination revealed a symmetrical growth, apparently of the whole uterus, which seemed on external palpation and internal exploration to be the seat of a myomatous tumor involving the body of the uterus. After the removal of the specimen by an abdominal hysterectomy, it was discovered that the tumor really was polypoid in shape, with an attachment to the uterine wall scarcely bigger than one's wrist. It might, therefore, have been possible to remove the growth by enucleation through the cervical canal, but the operation would have been a difficult one on account of the extensive morcellation required and the necessity for a wide dilatation of the cervix. The tumor had undergone com-

<sup>1</sup> Read before the Section on Gynecology, College of Physicians of Philadelphia, February 16, 1899.

plete mucous degeneration, and is the only example that I have seen of a complete mucous degeneration of a tumor of such a size (see plate). This must be a comparatively rare event, for in looking over the latest works on gynecology I have been unable to find the record of just such a case. While myxomatous degeneration of fibroids is recognized by every one, complete degeneration of a large tumor is apparently not a frequent occurrence. The patient reports, a year after the operation, that she is perfectly well.

(2) *Gangrene of a Fibromyomatous Polyp; Complete Inversion of the Uterus; Amputation of the Tumor; Immediate Restoration of the Uterus to a Normal Position.*—The patient is a single woman, age 35. Nine months before I first saw her she began to have metrorrhagia and pain. Three months later the discharge became very foul and she was conscious of a mass protruding from the vagina. She rapidly lost health and strength, and was sent into the hospital as a case of malignant tumor far advanced. She was extremely emaciated, profoundly reduced by loss of blood, and presented the appearance of a woman in the last stages of uterine carcinoma. Protruding from the vulva was a sloughing mass, which on microscopic examination proved not to be malignant. In the operation, under ether, it was discovered that the tumor was a polypoid growth attached to the fundus and that the uterus had been completely inverted, a condition of affairs which made the removal of the tumor exceptionally easy. The attempt to reinvert the womb was unexpectedly successful, and this feature of the case alone makes it worth recording. It is a comparatively rare occurrence to restore a uterus immediately which has been inverted for some months. My experience with inversion of the uterus in obstetric practice helped me greatly in the restoration of this womb. I have now had four cases in which I have succeeded in returning an inverted uterus to its proper position at one sitting. The uterine cavity was packed with gauze and the woman made an excellent recovery. Her change in appearance was so striking in the few weeks succeeding the operation that she was scarcely recognizable as the same patient who had entered the hospital a short time before.

(3) *Myomatous Polyp springing from the Lower Uterine Segment; Malignant Degeneration of its Distal Periphery; Enucleation.*—I am indebted for the report of this case to Dr. H. L. Williams, to whom the specimen was submitted for microscopic examination. It seemed so perfectly possible to

remove the tumor at a long distance from the seat of the malignancy that I was content with enucleation. Vaginal hysterectomy would have been difficult on account of a long-standing pelvic inflammatory infiltration with dense adhesions. The patient, a year after the operation, remains, I believe, free from recurrence. The cauterization of the cavity in the cervical canal with chloride of zinc unquestionably contributed to the good result.

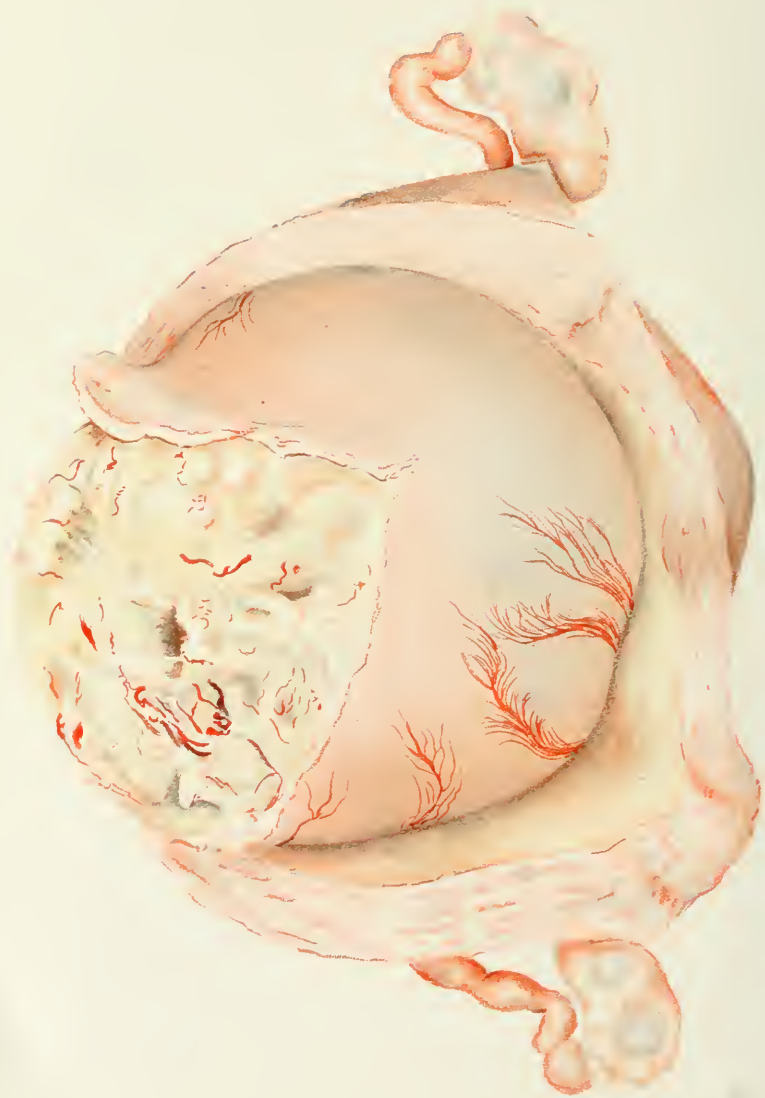


FIG. 1.—Adeno-fibromatous polyp. Enormous elongation of cervix. Depth of the uterine cavity, six and one-half inches.

(4) *An Intrauterine Polyp developing long after the Menopause and simulating Malignant Disease; Complete Inversion of the Vagina and Enormous Elongation of the Supravaginal Portion of the Cervix; Combined Abdominal and Vaginal Hysterectomy; Suspension of the Vagina to the Abdominal Wall.*—In this patient I was completely deceived as to the nature of the trouble. The woman was 64 years of age. She had had the menopause fourteen years before. Two years before I first examined her she had begun







COMPLETE MYXOMATOUS DEGENERATION OF A LARGE INTRAUTERINE MYOMA. — *Hirst.*

to bleed, and the bleeding had increased steadily in amount. For the last three months she had experienced abdominal pain. She did not yet show cachexia, nor was there a foul discharge. On an exploration of the uterus with a curette and a curettement forceps I failed absolutely to discover the polyp shown in the illustrations (Figs. 1 and 2), which lay so closely adapted to the uterine wall as to allow the instruments



FIG. 2.—Adeno-fibromatous polyp. Polyp turned out, showing very slender pedicle attached to left cornu.

to slip over it without difficulty. I submitted the scrapings of the endometrium to Dr. H. L. Williams, who informed me that, while there was no distinct evidence of malignant trouble, the appearance of the endometrium under the microscope was certainly suspicious. The whole uterus was accordingly removed, and, to my surprise, nothing was discovered in it but a simple mucous polyp, as shown in the illustration (Fig. 3). The woman, however, made a good recovery, and the prolapse of the vagina has been satisfactorily cured by suspending the vaginal

vault to the abdominal wall. A mistake in diagnosis in such a case seems almost inevitable. The exploration of the uterus was difficult on account of the great length of the cervical canal. The whole uterus, from external os to fundus, measured internally six and a half inches. In spite of this fact, however, the cavity, as I thought, had been thoroughly explored and the possibility of a polyp was excluded. This case, as well as two

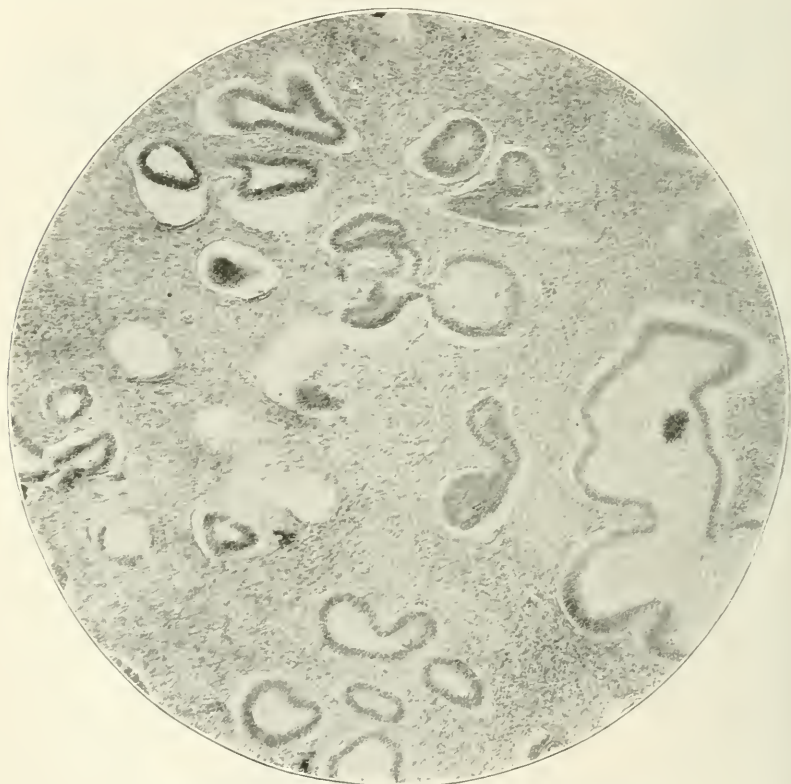


FIG. 3.—Section of adeno-fibromatous polyp of fundus uteri.

more to be mentioned under the next heading, show the importance of careful examinations in the diagnosis of all cases in which intrauterine tumors may be possible, and the liability to error in spite of every precaution.

(5) *Uterine Polyps, Myomatous and Mucous, giving rise to Profuse and Continuous Bleeding; Difficulties in their Diagnosis.*—Two cases from a number of this kind have been selected to show the difficulties in the diagnosis of what



is usually a condition easily recognizable. One patient had been bleeding profusely for two years. During the summer she had met with a fall while descending a staircase, which brought on an alarming uterine hemorrhage. Dr. Fremont-Smith was called to see the patient, and, making a vaginal examination, detected a polypus protruding from the os. As soon as the patient was in condition to travel she was referred to me for operation. On making a careful examination there was no external evidence whatever of the polyp, which, after being displaced downward, no doubt by the fall, had again been retracted within the uterus. A careful intrauterine exploration with the finger would have been necessary in this case to have recognized the true state of affairs, and the existence of an intrauterine tumor might very easily have been overlooked, though it was the size of an English walnut.

In another case, in which there had been increasing irregular bleedings with expulsive pains for a year, the patient applied to a gynecologist in a neighboring city, who subjected her to a most thorough examination in various postures and with the aid of electric light. He declared her to be absolutely healthy and stated that there was no necessity for any gynecological treatment. As her symptoms continued and steadily grew worse, she applied to me a few months after having received the foregoing opinion. On making a specular examination a mucous polyp was found protruding from the external os, which had unquestionably been in existence at the time of her previous examination, but had been overlooked by one of the most experienced and careful gynecologists in the country.

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A CONVENIENT TECHNIQUE FOR THE DELIVERY OF THE  
AFTERCOMING HEAD WHERE GROSS DISPROPORTION EXISTS:  
WITH COMPARATIVE CONSIDERATIONS.

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BY

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(With six illustrations.)

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ABOUT midnight of the 29th of July, 1898, Mr. A. called me to see his wife, saying that she was having some strong pains, but, as it might be a false alarm, if I would see her then we

might have the remainder of the night for sleep. His home being but half a block from the office, I accompanied him, not taking a grip with me, intending to send for it should it be necessary.

*Previous History.*—Three years before I had been called to Mrs. A. to assist her in her first confinement. The attendant stated that she had been in labor thirty-six hours, and that the head, L. O. A., had been down on the perineum for two hours. The pains having become very weak, and she being tired out, I delivered the head by forceps; the neonatus was a vigorous female of about seven and a half pounds weight. The delay in

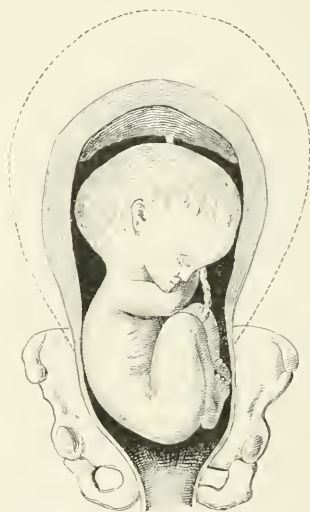


FIG. 1.—Hydrocephalus of fetus with hydramnios of uterus.

the second stage was not due to any disproportion between the cephalic and pelvic diameters; the pelvic proportions were normal.

*Present Case.*—I found the parturient walking about, holding her hands to the abdomen, especially over the left lower quadrant of the uterus. Inquiry elicited that that spot hurt her “awfully,” and it “eased her to hold it together.”

*Examination.*—Immediately examining her internally to ascertain the state of labor, intending to examine her externally afterward, I found her in the first stage of labor, with cervix dilated to a diameter of five centimetres, soft and retractable, membranes intact. Though the contractions were strong and

very painful, yet they had little influence in forcing much of a protrusion of waters or of advancing the breech, which presented L. S. A. No abnormalities below.

The left hand externally above under the wrapper immediately suspicioned a hydramnios, because of the great size of the abdominal protuberance, also a strong cephalic development; but at this time I did not diagnose a hydrocephalus, merely stating to her I thought her increased pain, and especially the pain below and of the left side, due to over-distension because of an excess of liquor amnii.

As I turned again to wash my hands I suggested that she walk about to encourage further dilatation. In rising the

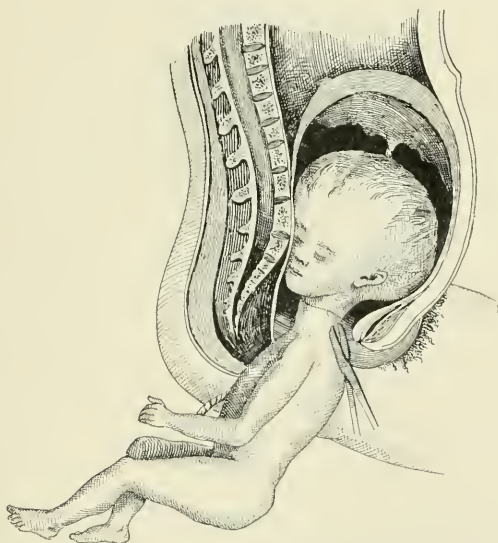


FIG. 2.—The hydrocephalic head arrested at the superior strait; dotted lines of neck to show planes of skin cuff and vertebral disarticulation. Transverse relation of head.

effort caused the membranes to rupture; there followed a discharge of a much larger quantity of liquor amnii than usual. In the short time it took me to cross the room the trunk of the fetus had been expelled. Had the fetus had a normal cephalic development it would have been a case of precipitate labor, so quickly and powerfully did the uterus contract. While she slowly reclined upon the bed, supporting the fetal trunk with my hand, I noticed there was no advance of the trunk. Now catching sight of the abdomen for the first time and palpating with the other hand, the explanation was simple: the medium-

sized trunk, bespeaking a seven-pound infant, made no further advance, notwithstanding strong and constant contractions, because of a large, hydrocephalic head.

Fortunately I had some chloroform with me. While chloroforming, my mind was busy with the problem, What is to be done? I thought of the usual method for extraction of the disproportioned aftercoming head by perforation, excerebration, if necessary craniotomy, and extraction. But as I was alone, with no instruments save my ordinary pocket case, and being aware of the difficulties probable with such a method, I determined rather to decapitate, turn the head to a vertex presentation,

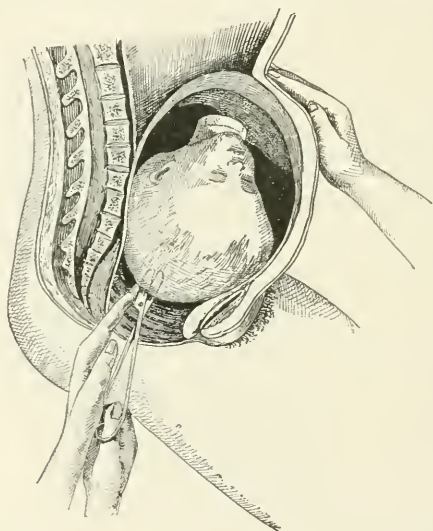


FIG. 3.—The aftercoming hydrocephalic head, decapitated and turned, that more favorable advancing head (vertex) condition may be perforated and manually extracted. Transverse relation of head.

perforate, and manually extract. As soon as she was thoroughly under the anesthetic I sent the husband for my obstetric bag and a senior student, that, should I fail in my anticipations, the necessary assistance would be at hand, meanwhile going on with the operation.

*The Operation. Extraction of the Arms.*—The anterior arm only caused some difficulty to bring down, yet both were delivered without fracture or traumatism. With my pocket scissors I severed the trunk as near as possible to the labia. Several times I was compelled to stop to refresh the chloroform. To disarticulate the column was no trouble whatever; as the



assistant entered the room I was cutting the last particle of skin holding the trunk. Handing the chloroform to the senior, I confined myself to the decapitated head. I waited a moment to observe if fluid escaped from the severed end of the vertebral canal, but there appeared none, no cerebro-spinal fluid escaping from the severed upper end, even when firm pressure was made upon the head through the abdomen above. At this point I thought of passing a catheter through the canal into the encephalon, but decided not to, as I believed it would consume too much time and was doubtful that it is so successful of

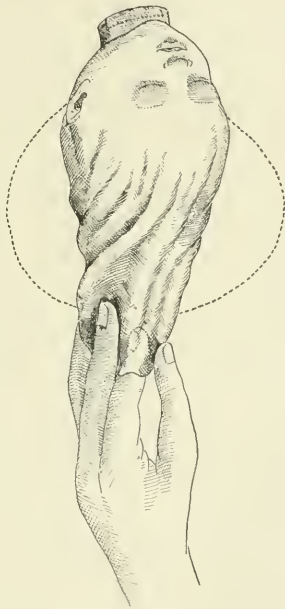


FIG. 4.—Head of hydrocephalus—manual extraction of excerebrated head.

performance as it seems when reading. In decapitating I made a cuff of the skin of the neck to cover the vertebra resected higher up; but even without this cuff I do not think the vertebra thus disarticulated and covered with its soft tissues would abrade or lacerate in turning. At this time the head was transverse in the superior strait, with face to the right. Little difficulty was experienced in rolling the head around so that the face was to the left with the vertex presenting and the sagittal suture in the transverse diameter of the superior strait. At this step I again paused a moment to see what effect firm

pressure from above would have upon the scalp. Would it rupture and permit evacuation? Firm pressure had no other effect than to tighten the skin.

To perforate I chose the ordinary long, blunt-pointed, curved scissors. Immediately there was a gush of a considerable quantity of serous fluid. Withdrawing the scissors, I inserted the index finger of the left hand to break down the brain tissue. With my finger in the cavity I could feel how the uterine contractions now produced lateral collapse of the thin bony plates of the calvarium, and soon found no difficulty whatever in delivering the collapsed head by slight pressure from above, aided by simple twisting of the bones of the vault upon themselves, at the same time making traction by means of the index finger within, enforced by that of the other fingers without the calvarium. No hemorrhage followed the delivery of the head; placenta was delivered immediately by expression. Careful inspection showed no lacerations, abrasions, or other signs of traumatism. The time of the operation, from the beginning of the extraction to the completion of the delivery of the placenta, was no longer than fifteen minutes. The physical effort expended in the complete extraction was far less than I have often expended in a podalic version and extraction. The puerperium was uneventful, the temperature running over  $99^{\circ}$  only on the fourth day, when the breasts were distended and painful.

Given another such case as this one, or one with a normal head and gross pelvic contraction, would I adopt a similar technique? Yes; for, as a criterion of success, the result in this case leaves nothing to be wished for. Each step was easier to carry out than I had anticipated; the dangers evaded, many; no embarrassing pauses whatever occurred from awkward engagements of the resected parts, clumsy interference of the trunk, or injuries to the soft parts.

The puerperal chart could hardly present a more favorable record under the most convenient of conditions. And this record is all the more interesting because, barring soap and warm water, no other aseptic agent was used.

With the exception of the fourth and fifth days, the temperature and pulse bespeak a normal course. Even the slight rise of temperature marking these days ( $99^{\circ}$  to  $99.6^{\circ}$ ) is very favorable, considering that it so closely followed so serious a physical and mental effort. The pain, antepartum, in the lower quadrant of the uterus was undoubtedly caused by over-dis-

tension. Most probably had rupture of the uterus taken place it would have occurred in this region.

*The Fetus.*—Not having had time to make external examination, I did not learn the condition of the heart tones. The patient subsequently informed me that she had felt fetal movements that afternoon, but they were weak and few compared to those of some days before, ceasing entirely toward evening; she had thought that something must ail the baby. When the trunk came down its appearance was that of asphyxia pallida. There were no signs of activity or life in the trunk, as may often be seen in the struggling of a vigorous fetus whose aftercoming head is impacted above—that wiggling, pushing, throwing about of arms, legs, and trunk, analogous in picture to that of the struggles of the little boy who pokes his head through the peep-hole of the fence and is collared by the boy on the other side. The struggles of the boy at the fence-hole and those of the impacted aftercoming head of the fetus at the outlet in expression are alike, differing only in degree of strength; therefore the vagitus uterinus and the wiggling of an impacted fetus are early, but not the earliest, expressions of prenatal consciousness. In this case of hydrocephalus its vitality was of a low degree, as is characteristic of such cases. I was surprised at the ease with which the version from the resected basic vertebral presentation to the vertex presentation (see Figs. 2 and 3) with sagittal suture in the transverse of the superior strait, was accomplished, nor was there any danger of a uterine laceration or rupture because of its firm contraction. The first attempt at rolling the head around was not successful—my fingers were covered with blood; the second attempt, with fingers rinsed, was successful. This transverse relation of the head to the superior strait I think most favorable, even when it is to be attacked in an aftercoming condition. Strassmann prefers an antero-posterior relation.

With the head in the transverse, cephalic pressure upon the soft tissues, uterus, bladder, etc., is at the minimum; it is at its maximum in the antero-posterior relation. With the head in the transverse, lateral collapse of the excerebrated head is more favored by both cephalic and maternal forces; antero-posterior collapse of the head is not so favored by these forces nor so marked when the head is in the antero-posterior diameter. Spontaneous evolution is far more favored in the longer transverse than in the short antero-posterior diameter.

*The Perforation.*—In perforating I avoid the sharp special

perforators whenever possible, as the risk of their slipping from the point attacked and into one's fingers or into the soft maternal tissues is not small. The extraction of the collapsed head with manual means only was easy. I believe the blunt hook, recommended under these conditions, is always a dangerous instrument, in however clever hands, and can never accomplish so well or so intelligently that which can the index finger.

*Choice of Operation.*—Given an emergency, three factors are involved in its solution: (a) environment, (b) method, and (c) individuality. The environment was modest and clean, yet, as is often the case, without any conveniences. The choice of method was one of several, as recognized, all of which, under the circumstances, I felt would be more difficult and tedious of execution than implied by their authors; therefore I decided upon a different course. It was a pleasure to note how smoothly and evenly the operation permitted itself to be carried out, not even moderate difficulties or inconvenient stops of any nature whatever occurring.

*Other Methods.*—The usual manual method of Veit-Smellie with its infrapubic traction principle, and the Martin-Wiegand-Winckel method with its suprapubic pressure principle, both aided by the finger in the mouth below, so successfully practised in the average case of extraction, and even there where there is moderate disproportion, in this case were naturally without effect.

The forceps likewise would be without effect, though they might have been applied to try if by compression rupture of the thinned, dilated tissues might be effected; but, unless the case were a macerated hydrocephalus, success would be very improbable.

Simple puncture and evacuation with trocar or metal catheter through a postero-lateral fontanelle or suture or foramen magnum. I did not have either instrument with me; even so, I should not have used it in this case. It must be remembered that, with so large a cephalic development, access to the head is not so easy or smooth as it reads. Access often can only be had if the trunk be firmly (Kilian<sup>4</sup> used to wrap the trunk with a towel to aid this purpose) drawn to one side, that the posterior or anterior part of the base may be more easy of approach. Some time elapses and some difficulty is experienced before such a favorable point of puncture is found and entered; even so, the trocar or catheter is often plugged up with brain



matter, requiring further time and energy to correct. Such evacuation through the base under hydrocephalic or normal cephalic conditions (the latter, for the catheter, still more difficult) is a more protracted affair than when accomplished through the vertex, where avenues of approach are so plenty and free that the instrument may be made to simply fall in and is easy to keep clear. But all this time the traction necessarily exerted upon the trunk to draw it to one side causes a button-and-hole traction pressure of the head upon the soft tissues of the inferior parts of the uterus, the bladder, and the pelvic cellular tissues (see Fig. 2), encouraging the development of pressure inflammation, necrosis, and later on fistula—unpleasant sequelæ following these operations. Where normal tissues are present the dangers from this pressure are not so great; but when otherwise, as where previous inflammatory or septic cellulitis had been and now was latent, how easy to thus arouse a secondary process! These dangers and the buttonhole traction pressure were avoided in the decapitation.

De Paul's method of puncture, subperiosteal, through a fontanelle, that the hydrocs escapes into the cellular tissues of the neck, seemed to possess little of advantage; it is now quite obsolete.

Tapping the hydrocephalus through the resected vertebral column and spinal canal, as suggested by Van Heuvel in 1849, is a method which shows artistic ingenuity and cleverness of conception. It is too pretty and tedious an operation to be of practical service in the lying-in chamber. This operation is yet recommended by Tarnier (originally in his "*Thèse de Concours*," 1860); it is found illustrated and described in most text books. Van Heuvel's description of his operation and of how he developed it are of interest. A translation of his article is as follows:

"Mme. R., age 28 years, temperament lymphatic, pregnant for the fourth time, experienced about the middle of her pregnancy an active emotion, which was followed by a sensation of discomfort in the abdomen and loss of appetite. However, the gestation continued its course without other inconvenience. The morning of February 24, 1848, labor declared itself. The abdomen was strongly developed; one felt, by means of percussion and palpation, that the uterus enclosed a large quantity of liquid. The amniotic pouch having broken, there flowed away a quantity of water which inundated the whole apartment. I practised immediately the touch; the infant

presented itself in the second breech presentation, right sacro-anterior.

"The labor augmenting, the fetus descended little by little to the hips; there, notwithstanding strong pains, all progress was arrested. I thought to aid Nature in drawing with the fingers upon the fold of the groins; the inferior extremity and the trunk were disengaged in this manner as far as the umbilicus. It was only with much difficulty and after long efforts that I succeeded in extracting the two arms; but the upper part of the body, the neck, and the head rested fixedly engaged in the pelvis. During these manipulations the infant had ceased to live. I felt above, to the right superiorly, the cranium strongly developed. Because of the large volume of the head the occiput was situated so far above and before the horizontal branches of the pubis that it was impossible to attack one or the other fontanelle, lateral or posterior. I carried the left hand into the hollow of the sacrum and introduced the curved scissors of Denman before the body of the fetus, without being able to plunge the point into the sagittal suture. I endeavored to apply the forceps-saw;\* impossible this time to apply it. I introduced then the small, blunt crotchet into the left orbit, hoping by traction and sudden shocks to succeed in dislocating the orbital articulations in order to permit this intracranial serous mass to escape. Soon a little fluid moistened the vulva; but all these attempts had continued for two hours without the appearance of a near delivery. In order to finish I essayed again with the forceps of Dubois; the handles, after the locking, offered a considerable separation. I exercised a strong pressure and held the head of the infant; a small stream of liquid emptied itself without interruption. Little by little the cranium collapsed, descended into the pelvic cavity, and was finally brought away by the forceps, which were quite entirely closed.

"The infant, of ordinary volume, had the eyelids and the left orbit lacerated, disjoined; it was through the sphenoidal fontanelle that the liquid had escaped. The cranium appeared enormous; it equalled almost in size that of an adult. In spite of this delivery, so laborious, Mme. R. had the most happy

\* Resection of the head. In the hands of their inventors these appliances (forceps-saws and cephalotomes) have rendered good service, but they are rarely accessible to the average operator, who would not readily comprehend their use. "American System of Obstetrics," vol. ii., p. 78.

of childbeds. A year afterward she was delivered of another infant, well formed.

"If parallel circumstances presented themselves, one could act more simply and more promptly than I had; for that one would make a transverse incision, one to two inches long, in the cartilaginous tissue of a dorsal vertebra of the fetus, quite near the organs of the mother. If this incision were inadequate to sufficiently open the vertebral canal, one would make a second one, in the arc of a circle, above or below the first, finally elevate a portion of the posterior wall of this canal. Then, with a proper gum elastic sound provided with a strong

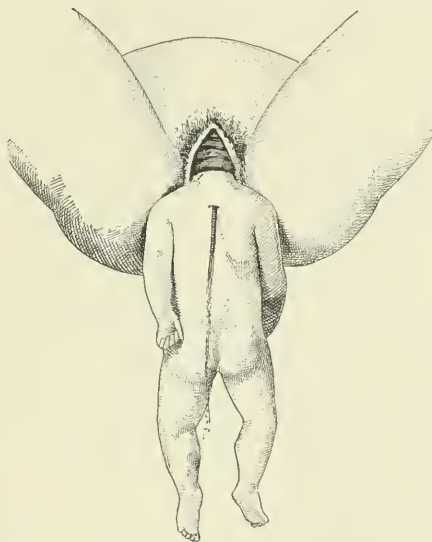


FIG. 5.—Van Heuvel's method of tapping a hydrocephalus through the spinal canal.

mandrel, one could easily penetrate through the vertebral canal into the cranium. The mandrel retired would permit the liquid to almost entirely escape, and the head, settling, would deliver of itself or with the aid of methodical tractions. This would be also a means to employ in a case of a considerable hydrorhachis where, after the delivery of the head, the trunk remains engaged in the pelvis. In opening the vertex of the cranium, and in penetrating with the sound into the vertebral canal through its superior part, one could reach without difficulty into the aqueous pouch forming the obstacle to the complete delivery."

*Recognized Methods for the perforation and extraction*

of the aftercoming head.—In general they present the same principles of technique—namely, (a) perforation of the base of the skull; (b) excerebration through the canal of perforation; (c) extraction; (d) if necessary, craniotomy or basiotripsy. They differ only in detail of execution. They are:

1. Perforation through one of the lateral fontanelles (D. W. Busch<sup>2</sup>).

2. Perforation between occiput and atlas through the foramen magnum (G. W. Michaelis<sup>3</sup>).

3. Section of the soft parts between chin and vertebral column, and perforation of the base by means of the trepan (H. F. Kilian<sup>4</sup>). “After having wrapped tightly with a towel the trunk of the child, the assistant elevates or depresses the trunk in such manner that the trunk is removed from the chin; this done, the obstetrician with a sharp scalpel cuts in sufficient extent, between the chin and vertebral column, the several soft parts of the neck, the pharynx, and as far as the base of the skull. . . . He then perforates with the trepan. . . . As every one can see, one should not make such traction with the trunk that one risks pulling it off.”

4. Perforation through the roof of the mouth, recommended in the more severe degrees of contractions (Archibald Donald<sup>5</sup>): (1) podalic version and extraction of the body; (2) after chin is drawn down, perforating through the roof of the mouth, at first with perforator, then cephalotribe; (4) cephalotripsy of the aftercoming head; (4) extraction of head by means of cephalotribe.

Alike in principle is the

5. Perforation through the floor of the mouth (Paul Strassmann<sup>6</sup>). With head in the antero-posterior diameter of the pelvis, fixing the head by means of traction on chin with index finger in the mouth, the body is elevated toward mother's; perforation with Naegele-Braun's scissors, operating from the hollow of the sacrum; with finger in the mouth, the point of the advancing blades may be felt and directed toward the cavum pharyngo-nasalis to the base of the skull, thus overcoming the danger Kilian warned against, that the perforator be not allowed to take a course directed toward the bones of the face. An opening is then made continuous with the foramen magnum, the hand remains in the mouth, the scissors are withdrawn, and a catheter inserted with which the brain is broken down and drained. When the calvarium is empty the head is delivered in the usual way with the Veit-Smellie or



Martin-Wiegand-Winckel manual method of traction with finger in mouth below and pressure upon head above; when necessary, with the Auvard cranioclast.

6. Here is seen Van Heuvel's idea—primary opening of the vertebral canal, followed by introduction of a catheter to the brain (J. Cohnstein<sup>7</sup>). He lays the spinal canal open by resecting four to six arches in the cervico-dorsal region, draws out the cord, and introduces a catheter to break down brain, irrigates to dilute. Cohnstein states that his method was the outcome of manikin experimentation. He had not performed it at the bedside, though Ahlfeld,<sup>8</sup> Magnus<sup>9</sup> (a case of hydrocephalus), and Zweifel<sup>10</sup> have since his publication.

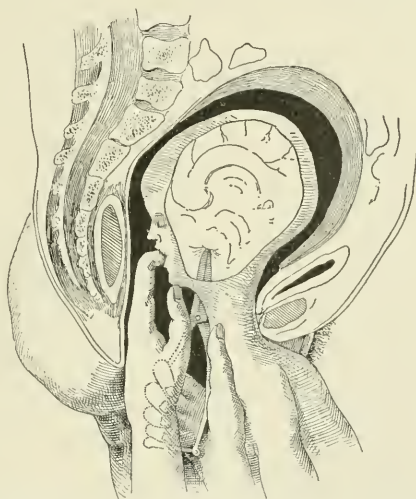


FIG. 6.—Paul Strassmann's method of perforation of aftercoming head. Antero posterior relation of head.

7. Perforation, if necessary, through the exposed spinal canal to the foramen magnum, in some respects a combination of the Michaelis and Cohnstein methods (Dührssen<sup>11</sup>). In his article Dührssen advises to perforate at a point nearest to the vagina, which can be covered and protected by the middle and index fingers of the left hand. Should the occiput slip above because of attempts made with the manual methods for extraction of the aftercoming head, so that lateral fontanelle or foramen magnum cannot be reached, he directs the perforator upon the first convenient vertebral arches, resecting these, then first pushing on through the foramen magnum into the cranium. For the extraction he prefers the Auvard cranio-

clast, devoting much of his article to a detailed description of this instrument, which he highly recommends. He refers to five cases. His last case seems, from his figures and from this distance, hardly a crucial case to test the merits of either method or instrument (he applied the Auvard), since the disproportion was very slight. The measurements as he gives them are:

Neonatus—Length.....	57. cm.
Weight.....	4130. gr.
Circumference.....	38. cm.
Occipito-frontal diameter.....	11. "
Mento-occipital ".....	13. "
Bitemporal ".....	7.75 "
Biparietal ".....	9.6 "
<hr/>	
Primipara with pelvis flat—conjugata diagonalis.....	11.2 cm.
Less for soft parts.....	2. "
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Conjugata vera.....	9.2 cm.
Biparietal diameter.....	9.6 "
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Disproportion.....	.4 cm.

which is too slight to be of obstetrical importance. As the case occurred under instructing conditions, the senior student having been permitted to do a podalic version from a primary first occipital presentation, undoubtedly this technique was adopted for demonstrative purposes. Were it necessary, would not perforation of the primary condition with subsequent podalic version and simple manual extraction yield better results under ordinary conditions?

8. Litschkus,<sup>12</sup> in a case of hydrocephalus, cut down on the seventh cervical vertebra and dissected subtegumentary with his finger a canal to the atlo-occipital interval, introduced catheter, drained and delivered.

9. Ström,<sup>13</sup> in a case of a 27-year-old rachitic primipara, perforated the high aftercoming head through a subcutaneous dissection along the neck to the foramen magnum.

Dührssen,<sup>11</sup> in commenting on the methods of Litschkus and Ström, thinks Michaelis' method of atlo-occipital perforation the better, as the canal is not so long nor dangers so liable to occur; also, that the catheter is prone to become plugged.

After careful consideration of the original communications of these authors, it would appear that they practically agree upon two conclusions. The first is that each author believes that his method presents distinct advantages over other methods

contemporaneous—a general admission that there are disadvantages to be overcome; the second is that they all agree that the inconveniences and the dangers to be avoided are the nagging delays due to the stopping-up of the canal or of the catheter in the excerebration, and the various traumatisms, such as rupture of the uterus, lacerations and perforations of the uterus and vagina from slipping of instruments, and tears from spiculæ of bone; hemorrhages; pressure inflammations leading to sepsis, necrosis, fistulæ, etc.—tacit acknowledgments that these dangers, to a greater or less degree, obtain in all such cases of aftercoming head where perforation is necessary. In fact, the sum-total conclusion of these various continental and maternity writers could not be better summarized than in the words of our own American authorities, “who, in craniotomy of the aftercoming head, conclude as follows:

“This is always a difficult operation, since the trunk interferes with the necessary manipulations. Moreover, the trephine can rarely be used, the scissors perforator is apt to slip, the thin cranial wall is out of reach and only the thicker, denser portions of the skull are accessible. It is usually recommended to perforate through a lateral fontanelle, or at the articulation of the occiput and atlas. Practically the operator must generally be content to perforate at any point behind the ear that he can reach, without troubling to find a fontanelle or suture.”

It is to be noticed that American opinion inclines to the postvertebral route of perforation, a far more convenient one than the antevertebral route as suggested by Kilian and others.

*Diverse Opinions as to Relative Facility to Perforate and Extract.*—Spiegelberg<sup>16</sup> thought operative extraction of the aftercoming head extraordinarily difficult; Scanzoni, extremely difficult; Kleinwächter,<sup>18</sup> impossible without the cephalotribe; Cameron,<sup>14</sup> always a difficult operation. On the other hand, Fritsch<sup>17</sup> sees an advantage in making traction with the trunk; Schauta<sup>18</sup> thinks not at all difficult, if only perforated through foramen magnum.

*Advancing versus Aftercoming Head.*—Donald<sup>5</sup> states “that the advantages of craniotomy on the aftercoming head as compared with the forecoming head seem to be as follows:

“First, the base of the skull is effectually broken up.\*

\*This is rarely, if ever, necessary. In the after-head condition where only moderate disproportion exists, the excerebrated head will collapse, which alone will suffice to develop the head; where the disproportion is

"Second, the head is well fixed during perforation and crushing.\*

"Third, the position of the head is easily altered.†

"The object of this [Donald's] paper is simply to draw attention to the advantages (?) of craniotomy of the aftercoming head as compared with the forecoming head."

Fritsch<sup>17</sup> (as above) sees advantages in favor of the aftercoming head; Schröder<sup>20</sup> thought perforation and delivery of the aftercoming head neither more difficult nor more dangerous than of the advancing head. On the other hand, Spiegelberg<sup>18</sup> thought that the aftercoming extraction was nearly always more difficult; Krassowsky,<sup>21</sup> somewhat more difficult. If one hundred opinions were gathered, I believe the majority would incline toward Spiegelberg.

Whether to reduce the decapitated head through the base, avoiding version, or through the vertex after version, I think reduction and delivery through the vertex is easier to accomplish and will yield superior results.

Given one hundred cases presenting the usual malconditions as to pelvo-cephalic disproportion, I think that one will find the advantages to lie with the perforation and extraction of the advancing head rather than with the perforation and extraction of the aftercoming head, for, however masterful the obstetrician, the following conditions will obtain:

1. The cephalic parts in the aftercoming head are more difficult of access.
2. The avenue of approach, because of its embarrassment, is more awkward for operation than when clear of obstacles like the neck and trunk.

great the excerebrated head should be encouraged to fold somewhat like the covers of a book, the base of the head forming one cover and the opposite parietal bone and tissues the other, the head clearing the strait much in the manner of a broad wedge, with apex below, and base, formed by the arched parietal bones, above; the reverse will obtain in the advancing-head condition. Winckel,<sup>19</sup> concluding upon basiotripsy, states "that the cephalotribe is an instrument which can be dispensed with, and the time is not far distant when it will no longer be used. My assistants and I, in the past fifteen years, in about fifteen thousand deliveries, have done without it, and the scanty publications about this operation in Germany show further that its use is steadily decreasing."

\* With a good volsella forceps, could it not be fixed more conveniently and more safely, more particularly if the trunk has been removed?

† This is not a common experience; the contrary is most often the case, and is especially mentioned as one of the greatest inconveniences presented in these aftercoming-head operations.



3. The assistance required is greater and more complicated.
4. The length of time of operation is longer.
5. The evacuation and breaking down of the brain is accomplished with less facility.
6. Extraction of the aftercoming perforated head manually or with instruments requires greater and more delicate efforts.
7. The dangers from slipping of instruments, ruptures, lacerations, and pressure inflammations are greater.
8. With the aftercoming head choice of vantage puncture is limited; the head cannot be turned or adapted as emergency or advantage may suggest. In the advancing head, and more especially when decapitated, the head can be turned, without difficulty or danger, into any form of presentation desired, so that any point, as a fontanelle or suture, may be chosen for attack.
9. The extraction of the aftercoming head presents more difficulties for the general practitioner, as well as for the specialist, than does the extraction of the advancing head.
10. As Winternitz<sup>22</sup> declared, decapitation, turning, excerebration, and extraction (his case with craniotomy) requires, comparatively speaking, little time. A short excerpt of his case is as follows: Parturient, 32 years old, well and healthy appearing, had four labors within four years, all with assistance. First labor: Forceps, difficult, at pelvic outlet; neonatus died a few hours post partum. Second labor: Induction of labor at thirty-third week; spontaneous delivery of 2,840 gramme child; died one day after. Third labor: Prolapse of cord and foot; reposition; spontaneous delivery of premature child; lived. Fourth labor: Occipito-posterior presentation; premature; forceps at pelvic outlet; lives. Fifth labor, present case: A generally contracted pelvis with a conjugata diagonalis of 9.9 centimetres; conjugata vera, 7.5 to 7.7 centimetres; position, first breech; membranes ruptured at 12 midnight; breech soon appears; extraction of trunk difficult; right arm extracted with fracture; head, high above superior strait, notwithstanding strong tractive attempts, does not descend; attempts made to perforate; finds no room in vagina for perforator; while attempting to perforate a profuse hemorrhage occurred, due to premature separation of placenta; pulse becomes small, face blanched, the patient threatens to collapse; decapitates, turns, perforates through vertex; hemorrhage still continues; applies cranioclast, soon delivers head; prematurely separated placenta immediately follows head; uterus contracts

firmly, hemorrhage ceasing; one hour and a half post partum, after various stimulation, the patient can safely be committed to the nurse's care; puerperium normal; neonatus 3,500 grammes.

Kilian<sup>4</sup> in 1849, Fehling<sup>23</sup> in 1889, both warned against exerting such traction upon the trunk as to separate it from the head. Under normal conditions and under moderate disproportion this suggestion is a very good one. Here, if the head be not spontaneously delivered, manual methods alone usually develop it. But where gross disproportion exists this objection need not stand, as decapitation with perforation, etc., may be performed as readily, more so, I think, than perforation, etc., of the aftercoming head with trunk still attached.

*Query.*—Will this method of decapitation and extraction prove as successful when dealing with the normal head as with the hydrocephalic? I think so, and that it should yield as favorable results. If it were necessary the turned, perforated, collapsed, thus advancing head could readily be disarticulated and extracted with the light, small Meigs or Mesnard forceps, and with less embarrassment than when crushed and spiculated with the heavier machinery of the cephalotribe.

Since the child is already dead or soon succumbs—a condition equal in both methods, ethically considered—I doubt whether a clean-cut and less cruel decapitation and extraction would not find greater favor with the parents than the more gruesome and drawn-out *Zerstückelung* of the craniotomy or basiotripsy. In private practice, and more especially under emergency conditions, this method will be found favorable, as here more especially exist the crucial tests of merit of any method of operation, namely: (a) superiority in result; (b) that the method is as convenient and successful of practice for the general practitioner of obstetrics, under his more trying private practice conditions, as for the specialist with his more perfect and less trying maternity conditions; (c) that the method possesses ease of technique and simplicity of execution; (d) that it is of ready applicability to those obstetrical emergencies which, as a rule, arise suddenly and must be combated single-handed.

103 STATE STREET.

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## PHTHISIS IN PREGNANCY AND LABOR.

BY

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TUBERCULAR invasion of the lungs occurs frequently in women during pregnancy who present a phthisical tendency, the infection taking place either at this period or preceding gestation. The disease develops actively in some cases, while in others it remains apparently dormant. In the majority of cases it assumes an overwhelming activity during childbed and in the period succeeding this. Such, however, may not be the case after the first pregnancy, but with each successive pregnancy the disease advances, and in such strides as to make it evident that pregnancy and parturition—of all predisposing

causes in the female—have to do most directly with the development of phthisis. The chronicity of the disease partly explains, no doubt, the apparently dormant character of its course sometimes observed during pregnancy. The localization of the lesion, the chest expansion of the patient, and the maintenance of the digestive and other functions of the body also control the expression of the disease at this time. In addition to this, respiratory compensation due to lateral expansion of the chest walls, together with a tendency to cardiac hypertrophy, offers a compensation for the loss of lung tissue due to the progress of the invasion.

The symptoms of the various stages in pulmonary phthisis are not sufficiently defined to make it possible to assert any theoretical conclusions as to its course during pregnancy. One fact remains beyond doubt, however, and that is that the progress of the disease is hastened by the occurrence of gestation. In considering the development of phthisis the pre-existing condition of the patient should be taken into account: conception occurring in the early stage of the infection may find the woman in a state of comparatively good nutrition; whereas, on the other hand, an anemic, poorly nourished woman, the subject of tuberculosis, whose vitality has been depressed by the nervous disturbance and derangement of the digestive function of early pregnancy, offers but poor resistance to the disease.

As to the special symptoms occurring in phthisis, we may consider:

1. *Dyspnea*.—This is more marked toward the end of pregnancy, owing to the impairment in respiratory efficiency of the abdominal muscles, the latter being called into use at this time as muscles of support by the constant pressure of the gravid uterus in its tendency to forward displacement. Dyspnea, however, does not assume threatening proportions unless it be from the rapid advance of the broncho-pneumonic process.

2. *Cough*.—If the cough be constant or markedly paroxysmal, as in the formation of cavities, it contributes to the asthenic condition of the patient. Danger to the interruption of gestation from coughing is not great, even though this be a persistent symptom.

3. *Hemoptysis*.—Pregnancy is not a predisposing factor in inducing pulmonary hemorrhage, beyond the general influence of gestation upon the development of the disease in women who present a tendency thereto. Hemoptysis as an initial



symptom in phthisis may occur in pregnancy. If it be present during gestation it is apt to abate temporarily with delivery.

4. *Fever*.—The initial fever of phthisis—that which occurs with the deposit of tubercles—may be present early in pregnancy with the onset of the disease, if this be consequent to the occurrence of pregnancy; while the fever of absorption may be present later, as the disease becomes hastened in its progress.

As to the interruption of pregnancy in phthisis, the proportion of abortions and miscarriages is comparatively small. Vinay presents a compilation of the statistics of Grisolles, Dubreuil, and Bourgeois, based upon 159 cases; of these, delivery at term occurred in 139 instances, premature delivery occurred in 9 instances, abortion occurred in 11 instances (one patient having died in her seventh month undelivered).

The interruption to pregnancy is more apt to occur in pluri-parous than in primiparous women. It is to be anticipated in the more advanced cases of tuberculosis.

Phthisis does not belong to those diseases the degree of infection of which is sufficient in itself to interrupt the course of pregnancy. The gravity of the disease in this particular lies in its depressing effect, due to wasting, and in the intensity of its special symptoms. The possibility of any one of the latter of itself producing abortion or miscarriage is doubtful. Taking them separately, for instance: First, as to fever, we may consider that hyperpyrexia is scarcely sufficient, *per se*, to terminate labor. The elevation in temperature is not likely to be great enough or continuous enough to determine the death of the fetus or to excite uterine contractions, as may be the case, for instance, in pneumonia. Secondly, hemoptysis and cough are not symptoms of sufficient gravity in themselves to produce abortion. Improper blood composition, such as may be found in either the anemia of tuberculosis or in conditions of improperly oxygenated blood, in cases of greatly reduced lung capacity due to excavation, has a directly depressing effect upon the vitality of the fetus. It is, however, unusual for pregnancy to be interrupted through such a cause, or even, in cases proceeding to term, for the infant to show signs of imperfect nutrition.

The question of direct infection of the fetus by means of the transmission of the bacillus tuberculosis from the maternal to the fetal blood is of interest as bearing upon the production of abortion and miscarriage. Ahlfeld believes, with the earlier

writers, that the placenta offers a certain impermeability to the invasion of micro-organisms. The researches of Schmorl and Kockel in the histogenesis of tuberculosis of the placenta partly support this view. They have described two forms, which are usually associated. In the first the alterations begin by the appearance of granulation tissue in the intervillous spaces; the villi, which appear to be the point of resistance to the invading bacillus, finally lose their epithelial covering and become invaded by bacilli, their demarcation being lost by the spread of the granulation tissue. In the second form, which is rare, the tubercular granulations develop in the tissue of the villi itself. This attempt at resistance, however, does not prove the impermeability of the placenta, as Bar and Renon have been able to inoculate guinea-pigs by the injection of blood obtained from the umbilical vein. Many other observers, Gärtner among others, have obtained positive demonstrations of the inoculation of successive litters of white mice from females treated by intraperitoneal injections. The present stage of investigation brings us, therefore, to the conclusion that there exists a possibility of transmission of bacilli from the mother to the fetus, although clinical evidence goes to prove that this transmission is exceptional.

The possibility of infection of paternal source must not be overlooked, for the ability of the fetus to survive *in utero* may be influenced by an infection received from the father. As to this point, direct paternal infection (tuberculization of the ovule) has not been demonstrated, although bacilli have been found, not only in the spermatic fluid of patients suffering from genital tuberculosis, but in that of tuberculous subjects supposed to be free from local manifestations.

In considering the influence of parturition upon the condition of a tuberculous woman, it may be asserted that it is distinctly unfavorable. During pregnancy there seems to be established a certain physiological equilibrium which assures an equalization in the various functions of the body, and which, although it cannot be counted on as a protection against the invasion of tuberculosis, offers an apparent barrier to its spread. No such influence is present, though, in parturition; the pain and nervous tension, the loss of blood, and the sudden relaxation following delivery are inseparable conditions in labor, and are all contributory to the physical exhaustion which belongs to the more or less advanced stages of phthisis. The effects of the traumatism incident to labor also seem to

give fresh impetus to the pulmonary lesion. Even a general dissemination of tubercles apparently dating from delivery has been observed.

The puerperium presents equally unfavorable conditions. As a rule phthisical women who have come to term with an elevation in temperature, or those who have developed a hyperpyrexia in childbed, succumb rapidly. The establishment of lactation offers a favorable influence to the development of the tubercular lesions. In fact no other set of circumstances could place the woman in a more receptive condition for the further invasion of the disease. As to the liability of septicemia as a complication in the puerperium, it is apparently not increased, the local resistance of the pelvic tissues to mycotic invasion not being diminished.

Huguier, Guéniot, and Budin have reported instances of fatal hemoptysis occurring in parturition.

*Treatment.*—Prophylaxis. Unfortunately the period of life in women in which they are most likely to marry corresponds to that of the development of tuberculosis. The child-bearing period thus comes at an age when the subject of possible infection is least likely to resist the disease under the predisposing conditions of pregnancy. The general rule, in which all writers concur notwithstanding the differences of opinion as to the influence of pregnancy upon tuberculosis, is that a patient suffering from distinct evidences of disease—the local signs of infection and the presence of bacilli in the sputum—should not marry. Beyond this it is difficult to lay down any rule. Hereditary tendency is not a factor, to the extent of serving as a guide in prognosis, in the question of the development of tuberculosis. If the disease be present usually some clinical evidence of it will have made its appearance before the marriageable age.

In the matter of further treatment the general supervision of the case is most important. The selection of a suitable climate comes first. This should be made at a proper time in the case, before the distress and discomfort of the patient prohibit travel. Systematic examination of the urine should be made. Where albuminuria is present milk should be given in such quantity as to serve as a basis of diet—one and a half to two quarts in twenty-four hours. The relief of gastric catarrh, the correction of the enteritis accompanying tubercular ulceration, and sedative treatment for cough, cover the therapeutic measures.

*Obstetrical Treatment.*—The question of the interruption of

pregnancy can have no bearing upon the treatment of the disease, unless it be under exceptional conditions, as, for instance, extreme dyspnea and anasarca—conditions which call for treatment to save the patient, and which are therefore directed rather toward the preservation of the child's life than toward limiting the disease in the mother. Upon the part of the fetus the only instance, outside of the threatened destruction of the mother, in which the induction of labor is indicated, is in cases of miliary tuberculosis, in which the acuteness of the symptoms threatens the existence of the child.

As to the management of labor in phthisical subjects, narcosis to control the physical strain is indicated in the second stage. In cases of pelvic deformity sufficient to offer obstruction to the passage of the presenting part, early operative interference is indicated, in order to save the patient unnecessary exhaustion. Hemorrhage, as far as possible, must be prevented. Strong supportive treatment should be commenced early in the puerperium.

Both on account of the tendency to the development of the disease in the puerperium and on account of the low nutritive quality of the milk, especially in the later stage of lactation, nursing should be prohibited. It is sometimes difficult to hold precisely to this rule, as it often happens in the early stage of the disease, or even in the more advanced conditions, that the supply of milk is abundant. In such cases the period of lactation should be curtailed, according either as to the convenience to the mother with which the milk may be suppressed, or as to the general condition of the patient. As to the danger of transmission of the disease in lactation, the presence of bacilli in the milk is so exceptional that infection from this source can hardly serve as a danger to the child. The fact that tubercular infection by means of the intestinal tract in the newborn is the exception also promises immunity to the infant.

112 SOUTH TWENTIETH STREET.

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## THE TREATMENT OF ASPHYXIA IN CHILDREN BY THE USE OF A SOFT-RUBBER CATHETER.

REPORT OF TWO CASES.

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BY

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CASE I.—Ten months ago I was asked by Dr. V. to anesthetize a child suffering with pyothorax. History as follows: C. A., age 4 years, general condition poor, type of patient anemic, marked venous congestion, respiration 40, pulse 140 and full, temperature 103°. Urine analysis showed albumin and hyaline casts. The patient had been aspirated twice without improvement. It was decided to excise an entire rib. I deemed chloroform preferable and administered it to complete narcosis with no untoward symptoms. Upon turning the child upon the side she ceased breathing; the pulse was just perceptible. I quickly inverted her, performed artificial respiration, and after a few moments breathing commenced. Thinking possibly the anesthetic was at fault, the surgeon requested changing to ether. The operation was proceeded with, and just as the pus cavity was opened the child again ceased to breathe. The same measures to restore respiration were again employed, but without effect. I then quickly introduced a soft-rubber cathe-

ter into the larynx and continued artificial respiration, exhaling forcibly through the catheter during the inspiratory phase. The child commenced to breathe, first in gasps and then with normal rhythm. Recovery complete.

CASE II.—February 10 I was suddenly called to administer chloroform in a case of hemorrhage during labor. Upon reaching the patient I suggested that ether would be far safer, she having lost considerable blood, and thereupon administered that anesthetic, preceded by nitrous oxide. The narcosis was induced in three and one-half minutes. Version was performed, the child extracted and laid to one side as dead. After discontinuing the narcosis I asked permission to try resuscitative measures in the child, and first tried artificial respiration, with absolutely no result; used hot and cold stimulation, hot cloths over heart, then the Koenig-Mas rapid compression of the chest, with no better result. As a last resource I introduced a soft-rubber catheter, keeping the child's head slightly extended; and then performed artificial respiration, first forcibly compressing the chest, then relaxing, at the same time exhaling actively through the catheter. After doing this about thirty times the breathing began by gasps, at the same time the color changed from an ashy gray to a gradual red. Upon removal of the catheter, after about fifteen minutes, I used alternate hot and cold stimulation, and respiration soon commenced with the normal rhythm. This case is interesting because artificial respiration alone did not seem to be of any benefit; combined with forcible inflation of the lungs (which the child was not capable of doing unaided), it produced the desired effect. The irritation of the catheter in the larynx may possibly have been of some use in stimulating respiration reflexly through afferent impulses.

In regard to the first case, the cessation of breathing at both times was of an asphyxial character. The heart was only secondarily affected. Neither of the anesthetics was a factor in causation of respiratory failure. It frequently happens that patients who have obstructive diseases of the larynx, great abdominal distension, large tumors, any condition causing imperfect interchange of the gases of the blood, often show signs of respiratory failure just at the time the condition is relieved. At this time the anesthetic should always be removed, especially chloroform (which was done in the above case), for the reason that when an obstruction to respiration is removed the patient will first take a deep inspiration and stop breathing.

Respiration, after a few seconds, in most cases is spontaneously resumed. It can readily be seen, were a saturated chloroform mask over the patient's face during the deep inspiration, he might take in an amount which, if actually measured, would be very small, yet sufficient to cause death from overdosage.

225 WEST FORTY-FIFTH STREET.

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## INFLUENZA COMPLICATING UTERINE AND PELVIC DISEASE AND PREGNANCY.<sup>1</sup>

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BY

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THAT influenza ever occurs *de novo* in the female genitalia is a doubtful question and probably an impossible matter to positively diagnosticate, but it is certain that very serious inflammatory complications of the uterus and pelvic organs are often found in cases of influenza infection. Menorrhagia and metrorrhagia are of frequent occurrence, and even acute salpingitis and pelvic peritonitis are occasionally met with. Engel, of Hungary,<sup>2</sup> observed 265 cases of menstrual anomalies amongst 902 influenza infections (29½ per cent), and remarks that he considers this even a smaller percentage than the actual one, as many a menstrual irregularity certainly had been overlooked by the attending physician.

A very grave case of the hemorrhagic type above referred to came under my observation at a time when little was known of the specific effect this disease exerts on the female generative apparatus. A girl of 17 years, in good general health, was attacked with influenza during our first severe epidemic about ten years ago. The disease affected the respiratory organs from the outset, developing into a bad case of pneumonia. When she took sick her menstruation was due, but was delayed a couple of days; on its appearance it developed into a hemorrhage which at times seemed dangerous to life, and resisted all treatment for five weeks until the chest symptoms subsided. The hypogastrium and iliac regions were

<sup>1</sup> Read before the St. Louis Obstetrical and Gynecological Society, January 19, 1899.

<sup>2</sup> Centralbl. für Gyn., No. 24, 1897.

slightly tympanitic and swollen; the uterus was very painful on vaginal examination, and the right tube was enlarged to the size of a small finger, felt soft and doughy, whilst the left one seemed embedded in a diffuse, semi-solid, inflammatory exudate. I suppose that the hemorrhage originated not only from the uterine endometrium, but also from the tubal cavities. Some blood may have oozed into the peritoneal cavity, causing the circumscribed left pelvic exudation described above, but most of the flow was discharged through the uterus.

To check the hemorrhage, ergot, sulphuric acid, gallic acid, hydrastis, and other remedies were administered, but without the least relief; in fact, later use of these drugs has convinced me that they are of no benefit whatsoever in uterine hemorrhage caused by influenza infection. The only drug which to some extent assisted in reducing the flow when dangerous, was nitrate of strychnia hypodermatically administered in doses of one-twenty-fifth of a grain each. I had used this drug successfully in other forms of severe uterine hemorrhage, and it again acted well and quickly. Its physiological action in these cases, I believe, depends on the stimulation of the vasomotor system, which causes contraction of the arterioles in the uterine wall. In addition, a hot two per cent acetic acid solution was used as vaginal douche, and during severe bleeding attacks the injection was given at a temperature of 120°, which probably was the main factor in checking, at least temporarily, the dangerous hemorrhage. The intense pelvic pain was somewhat relieved by one-third grain doses of codein combined with ten of phenacetin; but it is only in the beginning of this prostrating malady that I dare give a couple of full doses of any of the coal-tar products. Of course the systemic treatment, which is of paramount importance, consisting mainly in alcoholic and strychnia stimulants and concentrated fluid foods with plenty of milk, was properly observed. The patient convalesced slowly, but not satisfactorily, and eight or nine months later pulmonary tuberculosis developed, to which she succumbed two years ago. After the subsidence of the acute chest symptoms the uterine hemorrhage ceased, and three weeks later all uterine and tubal inflammation had completely disappeared, the local examination giving an entirely normal condition.

The peculiar and interesting feature in this case was the complete restoration of the pelvic organs, contrary to the general



experience in similar cases. Usually it is noted that such cases develop chronic inflammatory complications involving the entire pelvic organs, more or less. The thorough local recovery can very likely be explained by the assumption that the pelvic structures were absolutely healthy and normal when the girl took sick, and that when the general systemic influenza infection had run its course the local complication also subsided. It may be noted here, in connection with uterine and pelvic disease induced by influenza, that women are most liable to this infection when the attack occurs at the time of menstruation.

Another dreadful effect of influenza is the interference it causes with the normal progress of pregnancy. Abortions and premature labors frequently occur, are generally accompanied by excessive loss of blood, and usually demand instrumental interference. Müller<sup>1</sup> records 157 cases of influenza in women; 21 of these occurred during pregnancy, 17 of which aborted. This is by far a higher percentage of abortions than given by any other authority on the subject. As to the causations of these abortions, it is impossible to say, with our present knowledge, whether the influenza virus, the high fever, or the excessively severe and heavy coughing forms the main factor in the production of the miscarriage.

An instructive case of this kind (at least personally instructive) came under my care at the Polyclinic in 1891. Many more have been observed and treated since, but it was the first case of abortion I attended which left no doubt in my mind as to the particular intensity of uterine symptoms induced by the accompanying influenza infection. A woman, age 31, married, had three children, the youngest  $2\frac{1}{2}$  years old. She had not menstruated for three and a half months, and had taken sick, four days before I saw her, with acute influenza symptoms of the general throat and chest type, with the usual pains in head and back and "all over." Her temperature on the fourth day was  $105^{\circ}$ , with a pulse of 125. She was intensely prostrated. For two days she had noted a slight bloody discharge but no uterine pains. On examination I found the cervix and entire body of the uterus extremely sensitive, with no other sign but the constant oozing of beginning abortion. The next day free bleeding. On the sixth day the profuse bloody discharge became offensive. Even now there was hardly any dilatation of the os, with complete absence of uterine pains, the

<sup>1</sup> Münch. Med. Wochenschr., No. 41, 1895.

patient complaining only of extreme soreness on bimanual examination. I dilated and emptied the uterus. The decomposed fetus and placenta were easily taken away *en masse*, as they had been lying apparently loose in the uterus. A free, stinking, bloody discharge followed. After washing out the uterine cavity with 1:2000 formalin solution, I tamponed lightly with ten per cent iodoform gauze, the removal of which, after twenty-four hours, was followed by rather free bleeding, which was quickly checked by a hypodermatic of one-twentieth of a grain of strychniæ nitras. On the second day after emptying the uterus I placed gauze in the vagina only, which was removed the next morning, and ordered a hot vaginal formalin douche of 1:6000 every eight hours. The offensive odor of the discharge ceased entirely after removing the uterine contents, but the bloody flow lasted more or less for four weeks. The temperature continued high, ranging between 102° and 104°, for a week longer, when it gradually subsided. The patient was confined to bed for five weeks, and then it took half a year before she was again fully restored.

When influenza attacks a woman about to be confined the labor frequently proves a very tedious one with considerable uterine inertia. Excessively bloody and offensive lochia<sup>1</sup> at times continue for weeks beyond the normal duration, induced very likely by a diminution of the normal postpartum involution of the uterus. Lactation<sup>2</sup> is frequently diminished and at times completely checked, and occasionally it is even necessary in severe cases, when milk is present, to cease nursing the babe so as to save the mother's strength and to prevent infection of the child.

The high temperature and extreme prostration<sup>3</sup> of a severe case occurring shortly after labor reminds one strongly of puerperal sepsis, particularly as it starts abruptly with a heavy initial chill; but a differential diagnosis can generally be arrived at by the accompanying throat and chest symptoms and the general la grippe pains in the limbs, back, and head, not forgetting the characteristic, I would say, almost pathognomonic, symptom of this epidemic infection—namely, the constantly rapid interchange of the sensation of chilliness and heat. But when you are attending a case of the abdominal, the intestinal type of influenza it is almost impossible to tell

<sup>1</sup> Müller: München. Med. Wochenschr., No. 41, 1895.

<sup>2</sup> Lefour: Gaz. méd. de Paris, No. 11, 1894.

<sup>3</sup> Abrahams: AMERICAN JOURNAL OF OBSTETRICS, June, 1895.

whether or not you are dealing with the dreaded puerperal infection. A short time, though, will generally clear up the doubt. In puerperal septicemia its characteristic symptoms soon develop a positive diagnosis, while the influenza case will usually recover after four to eight days of excruciating suffering; although at times a fatal case may be met with, as occurred to Hintze, who reported (before the Obstetrical Society of Leipzig, May 18, 1896) eight labor cases sick with influenza when labor began; all eight occurred during one week; all gave characteristic catarrhal symptoms. Five were light cases and recovered nicely. One was sick twenty-six weeks; the child, born prematurely, was dead and macerated. Two cases died within a week after labor; both children were prematurely born. The autopsy in both cases gave empyema, and in one purulent peritonitis. The genital organs were of healthy appearance.

When influenza affects a woman sick from a chronic uterine or pelvic disease, it is almost certain that an acute exacerbation of the local affection will result. A case of endometritis, at the point of recovery, in which the discharge had almost ceased, again took on, during an influenza infection, the symptoms of acute inflammation, pain, profuse and purulent discharge which became hemorrhagic. Another case of chronic pelvic cellulitis with circumscribed pelvic peritonitis, which for a year was symptomatically well and needed no treatment, now, under the influenza attack, redeveloped an intensely painful inflammatory exudate behind the uterus, which terminated in an abscess pointing in the cul-de-sac of Douglas, where it was easily evacuated per vaginam. Tumors,<sup>1</sup> benign and malignant, are frequently considerably increased in size, and probably may even undergo degenerative changes. A case of ovarian cystoma increased at so rapid a rate and developed such serious symptoms of inflammation that the writer hardly dared wait with the operation until the fever was reduced to the normal.

On operating this case the cyst wall was found considerably adherent to omentum and bowel, highly congested, and traversed by numerous small blood vessels, which conditions probably may be accredited to the preceding influenza inflammation, as on former examination the growth had been found freely movable and not at all sensitive to manipulation.

2804 OLIVE STREET.

<sup>1</sup> Sequel: Centralbl. f. Gyn., No. 13, 1896.

## TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

*Stated Meeting, February 16, 1899.*

R. C. NORRIS, M.D., *in the Chair.*

DR. J. M. BALDY reported a case of

### INTRAUTERINE SMALL ROUND-CELLED SARCOMA.

The specimen which I have to present is an interesting one, and it is probably more interesting than I originally anticipated, from a pathological standpoint. It is a large tumor removed from a patient sent to the hospital for operation. On a rather hasty examination the condition was diagnosed as uterine fibroid. There was evidence of a large abdominal tumor, well rounded out. On closer examination it was very clear that it was something else besides a fibroid. The tumor was attached to the bowel at two points by what seemed to be an infiltration of long standing, and the parts were apparently bound together for good and all. Realizing that many such cases turn out to be malignant, I hesitated about finishing the operation. I have seen many of these patients who are so badly shocked from a fifteen or twenty-minute operation that their recovery was rendered doubtful. However, I finally decided to complete the removal. Realizing that any attempt to tear away the bowel meant to tear it open, I made the separation with scissors, leaving a piece of the tumor on the bowel. I then removed the diseased portion from the bowel and whipped bleeding points on the intestine with catgut to stop oozing. One point of attachment was very far over in the groin, and it was difficult to get between the abdominal wall and the pelvic brim. Hysterectomy was finally accomplished after much difficulty. After getting rid of the neoplasm and the uterus, the question arose as to what to do with the bowel. In the meantime I had cut the specimen open and found the tumor was all intrauterine. The wall was an inch thick, and the large intrauterine growth had an anterior broad base of attachment. The tumor was evidently malignant, to the eye. If the points of bowel attachment were involved in the malignancy it meant a double resection; from the manipulation which the patient had received I did not believe she had any show of surviving such a procedure, and therefore finished the operation without resecting the intestine. Dr. Williams has not yet completed the pathological examination of the points where the bowel was attached.



On the one side of the uterus there was no portion of the attachment of the neoplasm underlying. At the other point it was directly overlying the basal attachment. It is possible that this may not be infiltrated. The tumor turns out to be small round-celled sarcoma with myxomatous degeneration. It is a rare condition.

I have several other specimens removed from patients to-day at the Gyncecan Hospital. They present several points of interest, and I thought, as the specimens were fresh, I would present them to the Section. The first is a simple

DERMOID CYST ENUCLEATED, WITHOUT ANY PEDICLE.

It lay over the top of the uterus, crowding it posteriorly, and both tubes and ovaries also lay over in front of and on top of the uterus. The only peculiar clinical feature is the attachment of the bladder. The bladder rode up over the dermoid, and when everything was cleared up and the peritoneum was brought together the bladder was found to be an oozing mass. It was one of the class of adhesions which any one could deal with readily—not very firm, but very widespread. The question then arose of removing the uterus. I did a hysterectomy by amputation. The question arises, Why remove the uterus after such an operation? At the last meeting of the Section I took occasion to show you a uterus removed a year after the appendages had been removed, which illustrated clearly one of the many reasons for performing hysterectomy where double ovariectomy had been made. Where both appendages are sacrificed the uterus had better go also.

In this case the trouble is that the inflammation has been set up by the dermoid, and the result of the inflammation has been that both tubes are occluded. The ovaries are not in too bad condition to have been left had there been any desire to do it. The uterus, although large, I believe was only an inflammatory uterus with small fibroid nodules scattered through it. The woman had a history of bleeding very profusely and was well on to 43 years of age; both tubes were destroyed and there was an enormously large uterus. On the posterior aspect it was one continuous surface of oozing and bleeding. There could be no good in leaving it in the pelvis, and leaving such a uterus adds to the danger of the patients, both as to primary recovery and subsequent damage. In many ways they cause trouble. The woman was sterile, and the only point in leaving some ovarian tissue would have been for the ovarian influence, but I am not as yet thoroughly convinced of the propriety of that procedure. Where we have this inflammatory condition it seems to me there are points of caution to be thought of in leaving parts of ovaries. We do not know what causes ovarian cysts to grow, but when the uterus has been surrounded by inflammatory condition we do know that the ovaries are more apt to undergo cystic degeneration, and the amount of good which is obtained by leaving them is problematic. At any rate the age of this patient settled this question. The questions with

regard to the hysterectomy were those of adhesions, the complete occlusion of the tubes, and the added risk by leaving the bleeding uterus (as to the oozing and drainage). From the age of this woman I had no hesitation in doing a complete hysterectomy.

The next specimen is a simple

#### MONOCULAR CYST WITH OCCLUDED TUBES,

a possible hydrosalpinx. It has no fluid in it. This case is quite the antithesis of the previous one. It is that of a girl of 23 years of age, engaged to be married. Of course, the desire was that she should be left in condition in which impregnation might occur. When I came to the operation I found this cyst and the occluded condition of the tubes. Everything was densely adherent, quite as much so as in the case of the dermoid cyst. The ovary on the opposite side is comparatively healthy. I resected the tube in the first place near the fimbriated end, and found the mucous membrane diseased. I continued to resect piece by piece, going toward the uterus, until about the middle of the tube I found healthy membrane. I then stitched the mucous membrane to the serous membrane about the mouth of the tube. The tube was washed out thoroughly with sterile water by means of a syringe. I have little faith in the tube remaining patulous, but it gives her the only chance for future impregnation. The operation leaves the whole pelvis in a condition of adhesions, and the chances are that the opening will become occluded and glued up almost at once. The specimen is of no interest other than to show the condition of the tube which I dealt with by resection. Both tubes were alike. I washed out the tube to prevent any chance of infection of the wound. The patient is doing excellently.

DR. J. G. CLARK.—The first case reported by Dr. Baldy, of hysterectomy for sarcoma of the uterus, is of twofold interest: first, because of its rarity, for, as is well known, the proportion of sarcomata to other new growths of the uterus is exceedingly small; and, second, because the question arises of the possibility of there having been a sarcomatous transformation of the fibroid or myomatous tumor. If the latter is the case it seems to me the chances for complete recovery are moderately good, notwithstanding the malignant nature of the growth; for the probabilities are, from what I see of the specimen macroscopically, that there is but one tumor and it is apparently well circumscribed and was in process of extrusion into the uterine cavity at the time of operation. Under these circumstances it is conceivable that the sarcomatous elements were being further and further removed by Nature herself from the uterine wall. The majority of these cases of sarcomatous transformations, as reported by Williams, Pick, and Ruge, are of the spindle-celled variety. From Dr. Williams' preliminary study of this case it would appear likely that it is a round-celled sarcoma, in which event it has no doubt been from the start a sarcoma and is in

no sense a transformation of a benign to a malignant growth. These remarks are of course purely speculative, for the final decision as to the nature of the growth and the prognosis in the case must be determined by a careful microscopic examination.

Round-celled sarcoma of the uterus, as Dr. Baldy has said, is rare, as indeed are all sarcomata of this organ. Of the many malignant growths of the uterus which have come under my observation I recall but one case of this kind.

From the clinical standpoint the dermoid cyst removed by Dr. Baldy presents a noteworthy diagnostic point. One of the classical signs of dermoid cysts, first called attention to by Küstner, is said to be a pushing of the uterus backward while the cyst occupies a position anterior and toward the middle of the pelvis. In this instance the uterus was posterior to the cyst and therefore follows this law, which, however, must not be considered infallible, for there are many exceptions to it.

With regard to the prospect of a restoration of the lumen of the tube in the third case an interesting question arises. It seems to me decidedly commendable in all inflammatory tubal diseases in young women to practise almost ultra-conservatism, thus restoring as far as possible the chances for fecundation, as Dr. Baldy has done in this instance. As a result of this course the operator is not infrequently rewarded by finding that his patients conceive and bear children. In this connection I recall the history of a case in which the patient had most persistent dysmenorrhea and an infinite amount of pain in the pelvic organs. She was the wife of a physician, and they were both anxious to have children. The ovary of one side was so badly diseased as to leave practically no chance for any plan of successful treatment short of extirpation. The Fallopian tube, however, appeared to be moderately healthy, with an open fimbriated end. Whether the tube was patulous throughout its entire length it was impossible to determine. In this instance the diseased ovary was removed and the tube left, while exactly the reverse course was adopted on the opposite side, for the tube was diseased and the ovary healthy. A short time subsequent to the patient's discharge from the hospital she became pregnant and was delivered at full term of a healthy child. In this case the ovum was evidently picked up by the Fallopian tube, or, as is more likely, underwent transmigration from the ovary to the tube through the peritoneal lymph current and thus gained access to the uterus.

An evidence of the persistence with which Nature attempts to restore an occluded tube is shown in cases where the tube has been ligated and cut, according to the plan suggested, I think, by Hofmeier, for the purpose of rendering women sterile upon whom Cesarean section has been performed. As a sequel to this so-called sterilizing operation two or three patients have subsequently become pregnant through the re-establishment of the lumen of the tube.

In conservative operations where, so far as possible, adhe-

sions are broken up and the fimbriated ends are opened, thus giving every opportunity for the woman to regain a healthy tube, one would naturally presuppose that the chances for conception would ultimately be much better than in the above-noted instance.

In Dr. Baldy's last case, in which the uterus, tubes, and ovaries were entirely removed, the only possible criticism, or rather question, which arises is as to the propriety of leaving the healthy ovary. From my own observations of the post-operative course of cases in which the ovaries have been left, I am quite firmly convinced that this is decidedly the better plan. The symptoms of the menopause are much less severe, and in many instances have not occurred until the time for the natural climacteric. In inflammatory cases where there is a marked perioöphoritis the question is still open to discussion. Although this woman was 43 years old and no doubt rapidly approaching the menopause, I nevertheless feel that it would have been well worth the attempt to have left the healthy ovary, thus perhaps alleviating that much the postoperative climacteric symptoms.

DR. B. C. HIRST read a paper entitled

THE CLINICAL HISTORY OF UTERINE POLYPS,<sup>1</sup>

and reported

TWO CESAREAN SECTIONS

and

NINE OPERATIONS FOR EXTRAUTERINE PREGNANCY,

as follows:

*Report of Two Cesarean Sections.*—The first of these operations was performed on a young woman with a rachitic pelvis, conjugata vera  $7\frac{2}{3}$  centimetres. She had been delivered once before of a mutilated dead baby after a very difficult and prolonged operation. She had been in labor, when I saw her, for two or three days, though the pains had not been very severe for more than twenty-four hours. Two physicians of skill and experience had tried axis-traction forceps in vain. On examination the head seemed larger than normal, as it proved to be (occipito-frontal circumference,  $36\frac{1}{2}$  centimetres). A Porro operation was determined upon after consultation with the patient, her husband, and the physicians. The mother and child made a good recovery. The second case was a woman pregnant for the fourteenth time. She was 43 or 44 years old. Two or three of her children survived their birth and were grown up. She had a rachitic pelvis with a conjugata vera of a trifle over 8 centimetres. The child was presenting by the breech, and two physicians had tried in vain to extract it for many hours. After a careful examination, which revealed an unusually large child, I tried to bring down one leg, but was unable to insert my hand into the lower uterine segment to

<sup>1</sup> See original article, p. 478.



grasp it, even with the woman in the Trendelenburg position. Next I tried the application of a fillet to the breech, without success. It was evident by this time that one buttock alone could enter the pelvis, and that the child, therefore, must be gigantic, as it proved to be, weighing after birth, dressed, alive, and in good condition, fifteen pounds, which means about fourteen and a quarter pounds stripped. Cesarean section was performed after many hours of exhausting labor, with the woman in a bad condition. She died about eight hours later, apparently from pulmonary embolism—the first death I have had from a Cesarean section in five or six years. There was a sharp postpartum hemorrhage during the operation, from a relaxed uterus, but I paid little attention to it, as it took but a few minutes to ligate the broad ligaments and effectually to control it. The hemorrhage, however, I believe, predisposed to the fatal accident. Hereafter, in a woman inclined to bleed in a Cesarean section, I shall use an Esmarch rubber

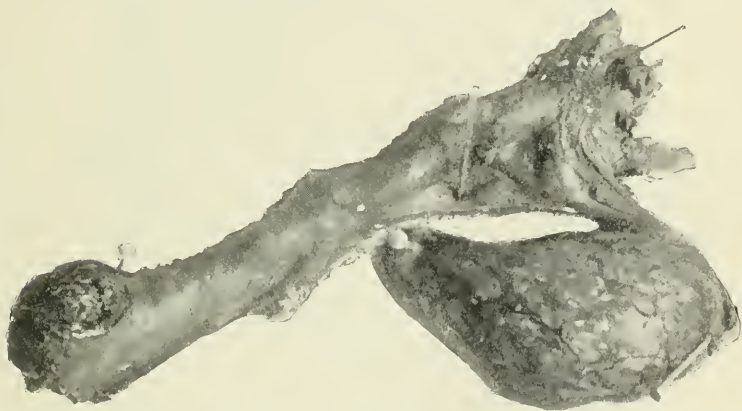


FIG. 1.—Hirst. Ruptured tubal pregnancy, not further advanced than fourteen days. Enormous intra-abdominal hemorrhage. Corpus luteum in opposite ovary. Internal transmigration of the ovum.

tube, which will surely prevent it. I used to employ this agent routinely, but have of late years neglected it, as it is not often necessary.

*Report of Nine Abdominal Sections for Extrauterine Pregnancy.*—At one of the meetings last year I reported 21 operations for extrauterine pregnancy. I have had since then 9 more, making a total experience of 30 operations. These last cases teach no new lessons. There were, however, several interesting cases among the number. Two were apparently only fourteen days advanced, judging from the size of the tumor and the clinical history. An illustration of one of the specimens (enlarged, Fig. 1) shows a swelling of the tube not over half an inch in its longest diameter, and yet the amount of blood in the abdominal cavity in this case was as

large as I have ever seen. In another case, in which the woman had already given birth to twins twice, there was and is every evidence of a coincident intrauterine pregnancy, which has not yet been interrupted by the operation. The patient has not menstruated since the operation, and the uterus is steadily enlarging, but it is too early to elicit positive signs of pregnancy. One of the cases had an extraordinary history. I operated for a pus tube on one side. The other tube and ovary, carefully inspected during the operation, were dropped back unmolested, as they appeared perfectly healthy. Four and a half weeks later there were symptoms which under any other circumstances I should have recognized as those of tubal pregnancy, but such an idea never entered my head. After three or four such seizures in the next five or six days a mass ap-

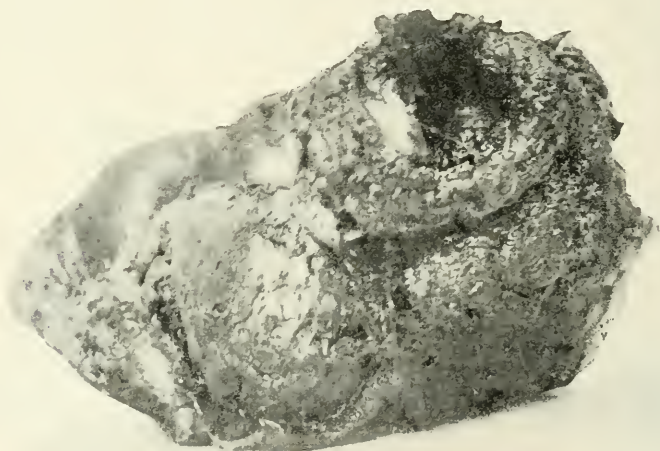


FIG. 2.—Hirst. Tubal abortion. Abdomen filled with blood without rupture of tube walls.

peared in the pelvis involving what had been the healthy tube and ovary. I supposed an infection had travelled up from the uterine cavity, and I reopened the abdomen. To my astonishment I found a ruptured extrauterine pregnancy. The woman must have been impregnated immediately before entering the hospital, and I had handled in the first operation a tube with an impregnated ovule in it, naturally without suspecting it. Of my 30 patients 3 died, one of cirrhosis of the liver and gastritis, a chronic drunkard, in the Philadelphia Hospital; the other two of acute anemia—they had practically bled to death before the operation was attempted.

DR. H. L. WILLIAMS gave a pathological report of the specimens referred to in Dr. Hirst's paper: The first specimen to which Dr. Hirst referred in his paper he removed last winter in the University Hospital. When it was fresh I remember

distinctly that it was about the size of the tumor which Dr. Baldy showed, and I think it would be interesting to notice these two specimens in relation to one another. Each of them is attached by a very large base, and they both undoubtedly began as a simple fibroid growth. A microscopical examination with thionin gave in each the mucoid reaction. There was no evidence of malignancy. The result of the pathological examination was as follows:



FIG. 3.—Hirst. Ruptured tubal pregnancy with extrusion of embryo.

*Pathological Report* (mucoid degeneration of fibroid polyp of the uterus).—The specimen consists of the uterus with adnexa attached. The uterus has been amputated at a point just below the internal os. The specimen, which is now considerably shrunken by the alcohol, measures 16 centimetres in length, 14 centimetres in width, and 10 centimetres in thickness. The tubes are somewhat elongated and tortuous, measuring 13 centimetres and 12 centimetres respectively. The

left ovary measures  $1\frac{1}{2} \times 3\frac{1}{4} \times 1\frac{1}{2}$  centimetres; the right measures  $2 \times 3 \times 1\frac{3}{4}$  centimetres. The specimen has been opened anteriorly, disclosing a large submucous fibroid which entirely fills the uterine cavity. This grows from a broad pedicle which measures 26 centimetres in circumference. The length of the fibroid is 15 centimetres; its width is 11.5 centimetres. The outer surface is smooth and glistening. The growth is enveloped in a distinct capsule. Anteriorly the tissue has been cut, revealing the interior of the tumor. This appears soft, watery, and gelatinous, and appears to have undergone mucoid degeneration. The uterine wall measures 2.1 centimetres in thickness.

*Microscopical Examination.*—Sections were made from the uterine wall and from the body of the tumor. The uterine wall is made up of fibrous and muscular fibres and appears entirely normal. The tumor is composed of unstripped muscular fibres loosely joined together, and contains diffuse areas which give the typical mucoid reaction when stained with thionin.

The second specimen (carcinomatous polyp of the cervix) to which Dr. Hirst referred was also removed at the University. It arose as a polyp from the upper side of the cervix, on the left. It is a rare and interesting specimen, and I will read the history:

*History.*—Mrs. C., æt. 48 years, has been married twenty-four years. She has had no children and no miscarriages. Menstruation has always been regular and has lasted from five to seven days. For the last three years the menstrual flow has lasted but two days and has been painful the entire time. Leucorrhœa has been profuse and recently of a bad odor. The patient has complained of pain in the back, pain in both sides, and pain along the lines of Poupart's ligaments and across the abdomen. Micturition has been frequent, imperative, and painful. The abdomen has been somewhat enlarged upon the left side, the bowels chronically constipated. The patient first noticed pain upon the left side three years ago, followed by painful menstruation and abdominal enlargement.

On the examination upon admission to the hospital a large, soft, sloughing cauliflower-like mass was found just inside the external os and completely filling the cervical canal.

At the operation the polyp, about the size of a large horse-chestnut, was found to be attached by a firm pedicle to the upper left wall of the cervical canal. The cervical canal was enormously dilated and the walls only a few millimetres in thickness. The mucous membrane of the right side of the canal, against which the polyp rested, was ulcerated and sloughing.

*Macroscopical Examination.*—The specimen consists of a soft, sloughing, irregular polypoid mass measuring  $1\frac{1}{4}$  inches in length and 3 inches in circumference. The cut surface of the pedicle, which is firm, white, elastic, and healthy in appearance, measures  $\frac{5}{8}$  of an inch by  $\frac{1}{2}$  inch. Sections were made from various parts of the body of the growth and from the cut surface of the base of the pedicle.



*Microscopical Examination.*—The preparations from all the lower portions and from the centre of the growth show large nests of epithelial cells in a somewhat glandular arrangement, separated by narrow septa of connective tissue. All normal tissue structure has been destroyed, and the fields present a typical picture of medullary carcinoma. The entire growth has been infiltrated with these nests of epithelial cells to within a quarter of an inch of the cut surface of the pedicle. No cervical glands can be found in the preparations. The sections cut from the surface of the base of the pedicle show apparently healthy fibrous connective tissue and unstripped muscular fibres closely bound together, similar in structure to the normal uterine wall, except at *edges*, where a few small nests of epithelial cells can be distinctly seen. One small nest of epithelial cells is also found at a considerable distance from the margin of the healthy tissue, so that a prognosis of complete eradication of malignant tissue must be guarded.

The third specimen is shown nicely in the pictures. It shows a distinct polyp, which is attached to the upper left cornu by a very small base. The cervix is enormously elongated. There are a considerable number of small subserous fibroids and a large subserous fibroid on the posterior wall, and also one in the broad ligament between the ovary and the tube.

Microscopical examination showed a typical adeno-fibromatous polyp. The surface epithelium has been destroyed, but there is absolutely nothing malignant about the specimen. The very interesting feature is the exceedingly long cervix. The report of examination of the specimen in detail is as follows:

*Pathological Report* (adeno-fibromatous polyp filling uterine cavity).—The specimen consists of the uterus, tubes, and ovaries. The uterus had been opened anteriorly and the cavity and cervical canal exposed from fundus to portio vaginalis.

Both tubes and ovaries are small and atrophied, but otherwise normal, with abdominal ostia patulous.

The posterior surface is smooth and glistening. Beneath the peritoneum are seen several subserous fibroid growths. Behind and below the right uterine cornu we find a fibroid nodule about the size of a pigeon's egg. Above and slightly in front of the isthmus of the left tube are three subserous fibroids the size of peas. At a similar point upon the right, one small fibroid nodule is also found. In the uterine wall there are also several small interstitial fibroids. The length of the entire uterus, from fundus to portio vaginalis, is 14 centimetres; the width at the widest portion of the body is 6 centimetres, and the antero-posterior diameter  $4\frac{1}{2}$  centimetres. The length of the cervical canal, from internal os to portio vaginalis, measures 8 centimetres (more than half the length of the whole specimen). The thickness of the uterine wall is  $1\frac{1}{2}$  centimetres.

At the internal os the cervix measures 3 centimetres in width, at a point half-way down the canal its width is  $3\frac{1}{2}$  centimetres, and at the external os  $3\frac{3}{4}$  centimetres.

The entire uterine cavity is completely filled by a polyp, which grows from a small pedicle projecting from the fundus at the left cornu. The pedicle measures 8 millimetres in diameter. The general shape of the polyp is triangular. Its length is 4.4 centimetres, its width 2.5 centimetres, and its thickness 1.3 centimetres. It is firm, tough, and fibrous in feel.

*Microscopical Examination.*—Sections were made from the top and from the centre of the growth. No epithelium covered the free surface, and in the lower portions the tissue near the surface is slightly inflamed and infiltrated with small round cells.

The main body of the polyp is made up of a dense fibrous stroma, which is riddled in all parts by glands such as are normally found in the uterine cavity. These are lined by a single layer of low columnar epithelium with nuclei near the base. The epithelial cells are not proliferated, and the section presents the typical picture of the fibro-adenomatous polyp.

DR. J. M. BALDY.—I do not know that there is much more to say, except to speak of the difficulty of diagnosis. It is not at all strange that one should overlook a small polyp at the top of the fundus. It is almost impossible to detect them at times. There is only a possible chance of curetting them away with a sharp curette, if one is not sure they exist. I think in these cases we have to depend very largely upon our clinical history.

The specimen with fibroid intramural nodules is of considerable interest in view of the subject of myomectomy, and is one more illustration of the ground I have taken with regard to myomectomy as the operation of choice. There are two cases in Philadelphia in which operation for the removal of appendages was done, and subsequently, in spite of operation, fibroid tumors developed and required operation.

Dr. Hirst has subdivided his cases of polypi into five heads. It hardly seems to me that the large uterine tumor and the fibroid tumors which are submucous, with very large bases of attachment to the uterine wall, come under the head of polypi, but rather under the head of intrauterine tumors.

The extrauterine-pregnancy group was very interesting because of the number falling into one man's hands in a limited time. These things run in groups. I think it is unusual for one man to have a dozen extrauterine pregnancies inside of one year. Oftentimes one is apt to think there is probably an excess of the disease developing at this particular time; but I think when one man is having that number of cases, other men are having a smaller group, and in this way they equalize themselves generally. I have also had an extraordinarily large number in the last four or five months, but I dare say many operators have had but few in the same time.

An extrauterine pregnancy of fourteen days is an exceedingly rare case. Three weeks is as early as I have ever seen one.

In the case that was pregnant at the time of operation and afterward developed symptoms of extrauterine pregnancy, one can hardly wonder that the clinical symptoms did not strike the obstetrician as significant of the disease. One could hardly expect, three or four weeks after having the tubes or ovaries in one's hands, that such a thing could have occurred.

DR. RICHARD C. NORRIS.—While Dr. Hirst was reading his paper I ran over in my mind my experience with extrauterine polypi since last April, and recall eight cases in my experience in that time, some of them with rather curious and interesting complications. I think the important, practical subject, when we consider intrauterine polypi, is the question of diagnosis. Unless the polyp happens to be hanging out of the uterus the average practitioner will usually fail to make the diagnosis, and the same failure is true of many gynecologists. That fact leads me to make the statement that we too infrequently explore the interior of the uterus with our finger. I believe that when a case of persistent hemorrhage presents no signs of cancerous or malignant change in the cervix or in the body of the womb, we should invariably dilate the cervix and explore the interior with our finger before resorting to a radical operation. There are some men who do this, and I happen to know personally of the record of one man who does it systematically, and he has discovered these tumors when other men had failed to find them. Another means of diagnosis of which Dr. Baldy has spoken, and which requires some comment, is the use of the curette. Besides using the curette, the curette forceps should always be employed, otherwise a small polyp, which I have seen occasion profuse hemorrhage, may be overlooked. I have had cases which have been curetted by physicians out of town, and I have used the curette and failed to find anything like a polyp, but as soon as the curette forceps was introduced and the interior of the uterus explored the polyp has been found.

Of eight cases of polypi which I have seen since last April, two of them were in pregnant women, and both of them were operated upon. One was quite a good-sized polyp, the other quite small. In the case of the larger one it was removed from the cervical canal by incising the base of its pedicle and closing the wound with one stitch. There was no interruption of pregnancy.

One other case was particularly interesting because it was my first experience with the obstetric forceps to deliver a tumor. The entire vagina was occupied by the tumor, which had been extruded from the uterus. I had the interesting experience of applying the obstetric forceps and doing a double episiotomy and extracting the tumor from the birth canal, exactly as one would an infant's head. The pedicle was then clamped and cut away, and the base of the pedicle thoroughly curetted.

A case was referred to me for removal of the uterus for malignant disease. The patient had the waxy, almost saffron color which results from prolonged bleeding and severe anemia. She

was brought to operation, and I thought I might be called upon to do hysterectomy; but, bearing in mind the need of exploration, I dilated the cervix and introduced my finger to the fundus of the uterus, when I discovered a mucous polyp and removed it. The patient steadily improved and is now restored to health.

Another case of malignant degeneration of a polypoid tumor was referred to me, and on the strength of the microscopic diagnosis I subsequently did a vaginal hysterectomy. Another case was treated by a physician as a case of miscarriage. The bleeding persisted for several weeks. The patient finally fell into my hands. I made an intrauterine exploration with my finger and removed a polyp.

I think we should insist upon a more accurate diagnosis with the finger and the careful use of the curette forceps. The dilatation of the cervix with the introduction of the finger will avoid many errors in diagnosis.

So far as the extrauterine-pregnancy cases which Dr. Hirst has reported are concerned, I have met with but one case in which the clot was as small as that of the first Dr. Hirst has shown to-night. This patient I saw with Dr. Boyd and assisted him at the operation. He did not even remove the tube and ovary, but the clot was removed and the tube stitched up. This patient has since borne a child at term. This was the earliest extrauterine pregnancy I have ever seen, and Dr. Boyd, I believe, had the specimen studied microscopically, so that no mistake could have been made.

I was exceedingly interested to hear Dr. Hirst's report of his series of Cesarean sections. My own experience in this operation has been limited. At the Preston Retreat, in a series of about twelve hundred confinements, it has been my fortune never to find a case in that number which seemed to require the Cesarean operation. I have usually had the opportunity, which comes to a man in my position in that hospital, to induce labor. I see most of the cases early, and I think that fact affords the explanation.

Once in a while cases are brought in, in active labor, with pelvic deformities, the true conjugate diameter ranging down to eight centimetres. I have reported in a discussion before this Section last April twenty-five cases of pelvic deformity with the results. The very small infantile mortality of that series and of subsequent cases has not been of such a character as to make me change my plan of treatment. I have delivered some of these cases by version, others by forceps. Where opportunity has been offered to induce labor that operation has been performed.

I was very glad to hear Dr. Hirst speak of the great desirability of surrounding the lower segment of the uterus with the tubing. I could never quite understand why that should be given up. As a precautionary measure, I believe it would be far more efficient than the hands of an assistant, however efficient that assistant might be. The constricting tube is par-



ticularly useful when about to perform hysterectomy, since there is no disadvantage in having the lower segment of the uterus constricted.

#### SPECIMENS OF PUERPERAL SEPSIS.

DR. HIRST.—I read that Dr. Deaver was to present a paper on “Hysterectomy in Puerperal Sepsis” and on the propriety of operating in such cases, so that I came to the meeting in rather an argumentative frame of mind, armed with these specimens, with which I hoped to refute anything Dr. Deaver might say against the operation.

The specimens are typical. I find, upon looking over my records, that I have averaged for the last three years at least four hysterectomies for puerperal sepsis a year. I have had this winter already three such operations, and in addition I have had a number of other operations for puerperal sepsis. Only a few days ago I had a case in which I made an incision over the groin and another in the loin, washing out a quart of pus by through-and-through drainage. There is no such thing as specific operation for puerperal sepsis. One is occasionally obliged to remove a necrotic or gangrenous uterus, just as he would be obliged to remove a foot of gangrenous intestine. He might as well expect a patient to get well with such a uterus left in the body as to expect her to recover without removing a gangrenous portion of gut. These necrotic uteri have the consistence of cheese. Nothing holds in them. They are perforated easily by the finger tip. The whole uterus is one vast nest of streptococci, and it would be just as sure to kill a woman, left in her body, as an enormous injection of a virulent culture. I have had twelve hysterectomies for puerperal sepsis with one death in the last three years, and I think this is a good illustration of what can be done by operation. One of the cases was brought into the hospital with a temperature of  $104^{\circ}$ , pulse 140. She was intensely emaciated and had that grayish color of the skin which we see in advanced cases of septicemia. There was a large mass filling up the whole of the pelvis. I opened the abdomen and found tubes and ovaries involved, the broad ligament an inch thicker than normal, and the uterus so soft that it could be pinched through between the thumb and forefinger. I took out everything—the tubes, ovaries, and as much of the broad ligament as I could get away. The woman made a tedious but good recovery and is now perfectly well. These cases, of course, need the freest kind of drainage with both gauze and tube.

Another case was one of criminal abortion. The patient came into the Howard Hospital with a rapid pulse and hectic fever. I operated on her and found the uterus perforated in one place. The whole pelvis was full of stinking pus. All the pelvic organs were taken out. She made a good recovery.

In another case the patient had a temperature of  $104^{\circ}$ , the pulse was 140, and the woman was almost comatose. She seemed to recognize nobody and only replied to questions asked

in a very sharp tone of voice. She was as far gone as any patient in sepsis whom I have ever seen recover. I opened the abdomen and took out the uterus and the other pelvic organs. The wound was drained with both gauze and tube. The broad ligaments were so thick that no mass ligature could be applied. The bases of the broad ligaments were left open. The whole pelvic cavity was packed with gauze and a large glass tube was placed in Douglas' pouch. This was replaced in forty-eight hours by a rubber tube, through which the pelvic cavity was irrigated daily with sterile water. Within twenty-four hours of the operation the woman's temperature was below 100°, consciousness returned, and her pulse was under 110, and from that moment she had no bad symptoms. A sinus remained for some months, but gradually closed, and she is now perfectly well.

These are types of cases which need hysterectomy, and without that operation they are absolutely doomed. I think this proposition is unassailable.

The woman whose uterus I have here was no worse than many I have seen get well. It is the only case that I have lost from an operation for puerperal sepsis in the last three years. That uterus had, when I took it out, the characteristics which have been described. In spite of the fact that I removed the seat of infection and the operation was quickly done, the unfortunate patient died. The result in this case is no argument against the procedure. It is impossible to be successful invariably in such desperate cases. That woman could not have recovered without the operation; it gave her the only chance she had.

DR. J. G. CLARK.—I would like to ask Dr. Hirst what he considers the indication for operation, and what cases he allows to go without operation. A report by W. A. Freund, of Strassburg, on excision of the ovarian veins in puerperal cases, they being usually the seat of infected thrombi, has recently come to my notice. In this report it is stated that the ovarian veins had been dissected up to the point of their entrance into the large venous trunks, and in that way the operator hoped to get rid of the septic matter. In addition to this extensive dissection he did a total hysterectomy and also excised the broad ligaments. In both instances the patients died. On account of the high mortality usually attending operations in puerperal infected cases, Freund stands by no means convinced as to the advisability of the operative treatment. It seems to me especially important, therefore, to know the indications that Dr. Hirst establishes for the operation from which he has secured such splendid results.

DR. J. M. BALDY.—The whole subject of hysterectomy in puerperal sepsis has always been one of interest to me. I remember some years ago reading a paper before the Obstetrical Society on this subject, and the opposition which was met in Philadelphia and the country around when the paper and the discussion were reported was almost universal. I am

gratified to learn that Dr. Hirst has come to take pretty much the same view that I have had for a good many years. While my results have not been nearly so good as those reported to-night by Dr. Hirst, still they have been sufficiently good to justify my practice of operating in certain of these puerperal cases.

The question asked by Dr. Clark (as to when you will operate) is one almost impossible to answer. What will be true in one case will not be true in the next. The cases from abroad mentioned by him belong to a class different from those under discussion by Dr. Hirst. Those cases were cases of lymphangitis and phlebitis. I have reported one such in which I operated and had a cure, a case in which there was nothing in the uterine cavity at the time of the operation to account for the infected veins.

The whole gist of the subject comes to this, that there is a point of local infection, which is in the uterus. The broad ligaments at times become as much infected as the uterus. The freer the drainage the better, and ligation *en masse* is a thing to be avoided where the broad ligaments are involved. The less compression of the broad ligaments, it seems to me, the more fortunate. The fact that the patient gets well in spite of the fact that the disease has passed beyond where the ligature can be placed, is only an argument in support of the position that it is not necessary to get rid of all of the infected tissue. But to get rid of any considerable portion of that tissue is so much gain. The point is to get as far beyond the seat of original infection as possible; the further away the better chance for recovery. Quite a large number of cases can be saved, I believe, by prompt, clean operation and free drainage. I would not attempt to draw a line symptomatically of when you shall operate. A temperature of  $102^{\circ}$  in one woman might mean more than a temperature of  $105^{\circ}$  in another. You can only tell from the effect it is having upon the woman. Oftentimes the trouble is in waiting until they are beyond the point where anything can be done for them, because we hesitate to say this woman must have her appendages sacrificed.

There is a large field in puerperal cases for good work, for life-saving work, much larger than in the ordinary pelvic infections. However, great good judgment is necessary in picking them. There is, in the hands of a good and conscientious surgeon, I believe, more danger of too long delay than too much hurry in operating on this class of patients. No man wants unnecessarily to operate on dying women.

DR. HIRST.—The question asked by Dr. Clark, and which Dr. Baldy has, I think, very wisely answered, is the most interesting one in this connection. It is a dangerous thing to generalize in any complicated medical situation, and, as Dr. Baldy has said, there are no hard-and-fast rules. My own feeling, so far as it can be expressed, is that there are two classes of puerperal septic cases in which one must operate. In one case a sudden change for the worse in the course of the

disease, which to an experienced man means death in a short time unless some radical relief is afforded, demands operation if there are physical signs of inflammation in the abdomen or pelvis. In the other kind of case the long continuance of fever, with a pelvic exudate, indicates an operation. I can best express my meaning by two illustrative cases. One I saw in consultation about ten days after her delivery. She had had a rise of temperature three or four days before, but when I saw her she impressed me as a patient in good condition, and I felt sure that she would make a good recovery. We agreed on the ordinary line of treatment. Within five days I was sent for to see the patient again, with the statement that she was very much worse. I went immediately and found that within the last twenty-four hours the whole condition of the woman had changed. She had almost fallen away before the physician's eyes. The cheeks were hollow, the lips covered with septic herpes, and the whole pelvis was filled with exudate. It is obvious that a woman suddenly developing such symptoms will probably die in a day or two. At the operation I found the uterus so soft that it could be punctured with the fingers. The uterus, necrotic throughout, the appendages and the broad ligaments were removed. Notwithstanding the desperate appearance of the woman, she recovered.

Another patient in this same category was the victim of conscientious delay. Every effort was made to avoid a radical operation, until finally it was obviously necessary. When I first saw the patient there was a large exudate on one side of the pelvis. The symptoms were not bad. The pulse was under 115, the temperature never above  $102\frac{1}{2}^{\circ}$ . On the day after several consultants first saw her the temperature, apparently in response to treatment, sank to normal and the other symptoms improved. On the following day she became suddenly very much worse. Her temperature rose rapidly; the intestines were markedly distended; the pulse was rapid and feeble. It was obvious that she was in danger of a fatal collapse. Preparations were made for operation on the following morning. In this case, unfortunately, the operation came too late. It was the only fatal result in an operation for puerperal sepsis which I have had in three years.

There is another class of cases in which operation is demanded which are slightly more common. In these the symptoms continue so long that there is evidently pus in the pelvis. This was illustrated in one of my cases this winter after a criminal abortion. Seven or eight weeks after the abortion, when I first saw the patient, the temperature was  $102\frac{1}{2}^{\circ}$ . There was a hectic appearance of the face, the pelvis was filled with exudate, and the abdomen was tympanitic and tender upon pressure. After keeping her under my observation in the hospital for a few days and finding that her symptoms, according to her history, had persisted for several weeks, it was obvious that the woman, who was not gaining at all, could not stand the strain of an operation if it was put off much longer. It is



plain in such a case that there is pus in the pelvis and that an operation cannot be avoided. I found in this case a large pelvic abscess and the necrotic condition of the uterus already described. I was obliged to perform a hysterectomy. The woman recovered.

So far as we can generalize as to indications for operation, I would say, operate in cases which suddenly become worse—so much worse that to all appearances the patient is going to die; that is, if there are physical signs of inflammation in the pelvis or abdomen. As to the form of operation, no one can decide until the abdomen is opened, but must be prepared to do a hysterectomy, or anything else short of it which may be required. Operate also in long-continued fever with a pelvic exudate.

Official transactions.

JOHN B. SHOBER, M.D.,  
*Clerk of Section.*

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## TRANSACTIONS OF THE ST. LOUIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of January 19, 1899.*

*The President, W. B. DORSETT, M.D., in the Chair.*

DR. F. C. AMEISS read a paper on

INFLUENZA COMPLICATING UTERINE AND PELVIC DISEASE AND  
PREGNANCY,<sup>1</sup>

which elicited the following discussion:

DR. GLASGOW said: I have observed in grippe epidemics a tendency to uterine hemorrhage. This is no surprise, for there is generally in grippe a tendency to profuse venous hemorrhage from other sources. The menstrual flow is always more profuse when occurring during or about the time of the disease. I never have had occasion, however, to resort to local treatment for the bleeding. I have not noticed that purulent inflammatory trouble in the pelvis is especially apt to occur during an epidemic or an attack of grippe. I have, however, attended two cases of labor during an epidemic of influenza, both of which developed a purulent endometritis. I had myself at the time a purulent bronchitis, to which I attribute the infection of my patients, rather than to any influence the prevailing epidemic might be supposed to have exerted. The first patient had a gush of blood with the placenta, but this was controlled without putting the hand into the womb. Although my man-

<sup>1</sup> See original article, p. 509.

agement of this case was with all due care in regard to asepsis, the patient developed such unfavorable symptoms as to necessitate intrauterine douching on the third day, with later the introduction of spiral wire drain. The labor in the second case was perfectly normal, although the patient had at the time a small ovarian tumor. There was no special hemorrhage nor other symptoms demanding the presence of the finger internally, and no douche was used, yet the case developed the complication referred to. All pelvic inflammation subsided under intrauterine douches, and subsequently, when I removed the ovarian tumor, the pelvic organs appeared normal. I believe that present infections are unfavorably influenced by the coincidence of grippe, either in the individual or as an epidemic. I suggest a hysterical origin in the case of the young girl referred to by the essayist. I have read of many cases where all minor and major surgical operations had been performed for relief of these obstinate hemorrhages. One case under my care I believed due to ungratified sexual demands. The woman when single, and later when widowed, suffered irregularly from menorrhagia, but during a happy married career functionated normally. I tried to influence the trouble by various procedures, such as dilating the sphincter ani, cervix, etc., but with unsatisfactory results. Used antipyrin locally with no result to further recommend its trial. No intrauterine or extrauterine trouble found, except hemorrhoids.

DR. DORSETT noticed an increase in the number of cystitis cases, as well as an increase in severity in old cases.

DR. MOORE saw a patient with menorrhagia lasting eight days. When he was called in there had been alarming hemorrhage and there was much depression. All hemostatics had been used except strychnine nitrate. The sulphate had been used in small doses. Hot injections had been used. There was no pain or tenderness. External os was patulous, probably as result of a tampon applied the day before. Cavity of womb was empty. This menorrhagia began a week after an attack of grippe. He gave full hypodermatic doses of strychnine nitrate and applied to the uterine cavity tincture of iodine with carbolic acid. After twelve hours there had been no return, and he believed the relief permanent, as he had heard nothing from the case. Believes this hemorrhage was due to the antecedent grippe. The important point is the treatment. Believes the essayist's indorsement of the use of strychnine nitrate is not the least valuable lesson emphasized by his paper. Dr. Moore related a case of cystitis in a merchant of good habits occurring after an attack of grippe. He inferred rather than proved that the influenza was more of an etiological factor than a coincident. Dr. Moore argued against the indiscriminate use of proprietary preparations, expressing the conviction that their use has a tendency to destroy familiarity with *materia medica*. He had prescribed lithia water in this case. In forty-eight hours all symptoms and indications of cystitis had subsided.

DR. LUTZ believed there was no doubt about all surgical con-

ditions being unfavorably affected by the prevalence of an epidemic of grippe. Healing is retarded, suppuration is encouraged, and resolution is interfered with. In illustration, an attorney suffering for three years with syphilitic tabes was attacked five weeks ago with grippe, which lasted two weeks, during which time he was faithfully nursed by his wife, who has a boy of five years and has had two miscarriages and now has a lacerated cervix. When the husband recovered the wife was attacked and had a coincident menorrhagia. She would not submit to local treatment, but was relieved by strychnine nitrate. She developed bronchial catarrh and in two days had innumerable frothy stools resembling cholera passages. She once had rheumatism and endocarditis, and now has a heart lesion. He recalled three other cases, all in women with a severe involvement of the mucosa of the small intestine. Drugs did little good, but diet tending to relieve the intestine of its work was most effective. In men had had bladder and kidney complications, which he treated as if grippe were not present.

DR. NEVILLE was called to see a case which he believed Dr. Ameiss' paper would explain. A woman of 72 had pain about the eyes, head, and limbs, no appetite, and a temperature of  $102^{\circ}$ . She was menstruating, an experience she had not had since her forty-ninth year. The flow lasted three days, during which time there was considerable tenderness over abdomen, particularly the lower part. Examination showed atrophied uterus and no pathological condition to account for the bleeding. Believed it a case of grippe.

DR. BROWN—Six weeks after attending a doctor's wife in her first labor, which was instrumental, and in which the perineum was torn and repaired with uneventful recovery, she had profuse hemorrhage from a not unusually large uterus for that stage of involution. Used nothing locally, as nitrate of strychnine gave the desired relief. Was convinced that this drug is usually given in too small a dose.

DR. GLASGOW was reminded by Dr. Lutz's remarks that he had seen much intestinal catarrh with grippe. One woman had as many as forty-eight profuse frothy stools in twenty-four hours. In these he gives morphine and strychnine hypodermatically. Had found benzoate of soda to be excellent, especially when catarrhal pneumonia is present. He warned against the use of salol, which he believed causes nephritis in grippe cases.

DR. DORSETT had heard of several cases operated on during prevalence of grippe in which healing was unsatisfactory. In one of his own cases the abdominal incision refused absolutely to repair. Observed a fistulous track in one case which was almost healed; an attack of grippe came on, and the hemorrhage from the fistula was so profuse as to require packing to control it. In one case of grippe, cystitis developed with tenesmus so severe as to require the use of morphia. Recently was prepared to do an abdominal section, but, the night before, the patient had a sudden temperature of  $100^{\circ}$  with unmistakable signs of grippe, so that the operation was postponed.

In contemplating operations he believed the presence of grippe, as an epidemic or in the individual, should have weighty consideration. He related a case of hemorrhage coming on several days after accouchement, due to an attack of grippe.

DR. LUTZ related a case of cystitis occurring in a patient after he had performed a ventrofixation for retroflexion. There were no other symptoms of grippe. He asked an explanation of the bladder symptoms.

DR. AMEISS closed by saying that in cystitis coincident with grippe the bladder complication very likely is caused by the Pfeiffer bacillus.

He frequently gives benzoate of soda in twenty-grain doses, diluted in a tumblerful of water, every three or four hours.

He had seen acute nephritis in influenza cases where salol had not been given. In a case of metrorrhagia with grippe pneumonia, albumin and casts were still found after the pulmonary and uterine inflammation had subsided.

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## NEW YORK ACADEMY OF MEDICINE— SECTION ON OBSTETRICS AND GYNECOLOGY.

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*Meeting of March 23, 1899.*

BROOKS H. WELLS, M.D., *Chairman.*

### UTERINE FIBROID; BILATERAL PYOSALPINX.

DR. J. A. SCHMITT presented specimens removed from patients in the St. Francis' Hospital. The first was a mass of uterine fibromata. The speaker said that even if the true pelvis were choked by these tumors, it was always possible to lift the uterus far enough to allow of reaching the uterine vessels. The other specimen was a bilateral pyosalpinx removed from a woman afflicted with chronic gonorrhea. The tubes and ovaries had been found embedded in old exudate, but their removal had been effected without rupturing the pus sacs. The uterus had not been extirpated, as he took the ground that when infected with gonorrhea it could be restored, by proper treatment, to a comparatively healthy condition.

### SPLENECTOMY.

DR. H. J. BOLDT presented an enormous spleen which he had removed some months ago from a case of leukemia. He said that according to statistics splenectomy had given good results in cases in which the extirpation had been done for traumatism. A few favorable results had been reported in cases of lardaceous spleen, but ordinarily splenectomy could not be considered a justifiable operation for other diseases of the spleen, not even



for malignant disease. Remembering that carcinoma was an epithelial disease, one would not naturally expect it to be a primary growth. His case had been hopeless from the start, and he would not advise such operations hereafter in these cases. His patient had died of exhaustion three days after operation.

DR. E. W. PEET referred to a case which had been diagnosed by a number of physicians as splenic leukemia, but the post-mortem study of the case had shown the spleen to be the seat of syphilis.

DR. BOLDT also presented a

#### LARGE FIBROMATOUS UTERUS,

which was interesting because of the enormous blood supply and the large number of adhesions.

#### OVARIAN CYST WITH TWISTED PEDICLE.

DR. H. N. VINEBERG presented the report of a case which had certain points of interest in connection with the diagnosis. The patient, a woman 52 years of age, had had eleven children and several miscarriages. At no time had there been any serious pelvic trouble, but for five years past there had been more or less pain in the ovarian region. The patient when first seen had had a temperature between 102° and 103° F. and a rather rapid pulse, associated with some vomiting. She was very anemic. Palpation showed a spherical tumor occupying the median and right lower quadrant of the abdomen. It was rather doughy in consistence. His diagnosis had been ovarian cyst with twisting of the pedicle. The abdomen was flaccid and not tender. The consultant was of the opinion that the case was a soft myoma, and felt certain that after thorough evacuation of the bowel the acute symptoms would disappear. The patient had been temporarily relieved by the evacuation of the bowel, but on the following day she had looked more anxious than before and had complained of a constant pain in the mid-sternal region. There was now a distinct mass in the left ovarian region. The first consultant having admitted that he had been mistaken and consenting to an operation, laparotomy had been performed. It had disclosed a large, black, cystic tumor. The mass which had developed during the day was in the left broad ligament, which had become infiltrated with blood immediately beneath the tube. The pelvic peritoneum was extensively infiltrated on that side, but it was decided to omit drainage. The patient made a good recovery.

#### HAIRPIN REMOVED FROM THE BLADDER THROUGH KELLY'S CYSTOSCOPE.

DR. VINEBERG said that last January he had examined with the cystoscope a woman who had stated that while attempting to remove with a hairpin a Smith retroversion pessary the hairpin had slipped into the bladder. The hairpin was found lying

transversely at the fundus of the bladder, with the bent part apparently embedded in the bladder mucosa. With a tenaculum passed through the cystoscope the hairpin had been brought up against the end of the cystoscope, and then, with the aid of an artery forceps, it had been possible to deliver the pin. It measured two inches and a half in length. The speaker said that he was inclined to believe that the hairpin had gotten into the bladder during the act of masturbation. Last spring Dr. A. F. Currier had read a paper in which he had stated that he had collected about fifty cases in which pins had passed into the bladder.

#### LARGE UTERINE FIBROID.

DR. RALPH WALDO presented a tumor that he had just removed from a negress, 40 years of age, who had never been pregnant and had not menstruated excessively, although she had complained greatly of pressure symptoms resulting from the presence of the large fibroma.

#### OVARIAN CYST MISTAKEN FOR A FIBROID.

DR. H. C. COE presented a simple ovarian cyst to illustrate the fact that the general practitioner sometimes made a better diagnosis than the specialist. The tumor, he said, had been diagnosed as a fibroid by three different specialists, one of whom treated the case for some time with ergot. The family physician had, however, persisted in the diagnosis of a cystic tumor.

#### TUBERCULAR PERITONITIS.

DR. ANDREW F. CURRIER read a paper on this subject. He said that it was only within a recent period that tuberculosis of the peritoneum had been the subject of critical investigation. The percentage of spontaneous cures was probably far more than in pulmonary tuberculosis, while the number of cases which had been relieved by medical and surgical treatment placed it in the category of diseases in which a favorable issue might frequently be predicted. The majority of its victims were females between the ages of 20 and 40 years. In males it was relatively infrequent. Its existence might not be suspected until discovered at autopsy. In children it was more frequent, particularly in those who were feeble and poorly nourished, and in such subjects it was prone to lead to a fatal issue. The present paper considered only the disease as it occurred in women. In the miliary stage of the disease the peritoneum was studded with miliary tubercles. These tubercles might be limited to certain parts or organs, or might be disseminated over every portion of the peritoneal membrane. They might be either superficial or deep. In the later stages there might be ulcerations or adhesive bands with patches of lymph scattered over the surface. This fibroid condition—for it was fibroid tissue which was the cementing substance—

might immediately succeed the deposit of the tubercles, or it might follow ulceration and caseation. The entire peritoneum gradually became thickened, until it assumed the appearance and almost the consistence of sole leather. In many cases there was an accumulation of ascitic fluid in the abdomen, a product of peritoneal irritation or of obstructed circulation. The fluid might be turbid serum or pus and might be either free or encapsulated. If the disease remained a local one, it tended to recover spontaneously or after surgical interference. If generalized, it was apt to terminate fatally like other diffused tuberculous processes. In some individuals the symptoms were quite insignificant, consisting perhaps in nothing more than a slight evening rise of temperature. An important symptom was abdominal pain. In children this pain was apt to be keen and lancinating. At times it resembled the pain met with in typhoid fever, and in this way sometimes led to an erroneous diagnosis of typhoid fever. Should perforation of the intestine occur, the pain would become intense and death would speedily supervene. If the abdomen were greatly distended with fluid there was not likely to be much pain, the sensitiveness of the nerve endings being obtunded. When the disease became chronic, there was often not more than an elevation of temperature of two or three degrees, and in some instances the temperature was normal or subnormal. The contour of the abdomen varied with the stage and character of the disease. Diarrhea was a common symptom, even where there was no tubercular deposit in the intestinal mucous membrane. Tympanites was not uncommon, and sometimes obscured the diagnosis.

The non-surgical treatment consisted in the use of cod-liver oil, malt, iron, creosote, and strychnine, in addition to prescribing a diet of pure milk, eggs, and lean meat. Fresh air and moderate exposure to sunlight would be found valuable adjuncts.

The surgical treatment, which consisted in exposing the peritoneum to the air and light, had been stumbled upon by Sir Spencer Wells, and was now looked upon as the most beneficent method of treatment. An abdominal section was not indicated in those cases in which tuberculosis was disseminated throughout the body. In the dry form of tubercular peritonitis operation was not favored by most authorities, but, if the theory of the effect of air and sunlight in destroying the bacilli was correct, he could see no reason why these cases should not be treated surgically. When the abdomen was the seat of an accumulation either of serum or pus, the fluid should be removed, and usually by incision rather than by aspiration. The peritoneum should not be rudely handled. The cavity should be irrigated with several gallons of hot saline solution, and there was no objection to leaving a portion of this fluid behind in the cavity. As a portion of the cure seemed to be due to the access of air, it seemed to him wiser not to close the wound completely at the time of operation, but to insert a drainage

tube for a few days. The mortality from this treatment after simple incision was exceedingly small, and many of these patients recovered entirely. The speaker cited a case which he had treated surgically. Two or three years later, owing to the necessity for operating upon a large ventral hernia, he had had an excellent opportunity of inspecting the peritoneum, and had been unable to find any trace of the former tubercular peritonitis.

ADJOURNED DISCUSSION OF DR. ROSENBERG'S PAPER ON PUERPERAL INFECTION.<sup>1</sup>

DR. PAUL F. MUNDÉ said that he had formulated the following definition of puerperal infection: "Puerperal infection means the introduction into the system of a parturient or puerperal woman, through her genital tract, of certain pathogenic germs, the staphylococci and streptococci, which, under favorable conditions, produce more or less dangerous and even fatal results."

At the present time, he said, it was not generally believed that puerperal infection included the introduction of other germs than the staphylococci and streptococci; other forms of infection of the puerperal woman did not come strictly under the head of puerperal infection or puerperal septicemia. A parturient woman might become infected with any of the exanthemata, or with typhoid fever, erysipelas, tetanus, or diphtheria, for example, but none of these infections could be properly classified as puerperal septicemia. True puerperal infection might be local, general, or both. A woman might have a local infection with staphylococci—sapremia—or she might have a general infection—septicemia. Then there was the form in which the infection started as a local one, then became general, and finally became localized as pus deposits in portions of the body distant from the genital tract. This third variety was known as pyemia. Many might object to this classification on theoretical grounds, but he felt sure that it was practical and useful. The reader of the paper had cited a case in which death from puerperal infection had occurred on the forty-third day, the brain, pleura, pericardium, and other important parts of the body having become infected. In true puerperal infection of the general type there was no local manifestation—that was one of the characteristic signs. The patient had a high temperature and a rapid pulse, and her system was evidently saturated with toxins, yet there was nothing to be discovered upon examination of the pelvis. Where there was septic endometritis, recovery usually followed prompt destruction of the local septic material. In such cases it was not desirable to scrape away with a sharp curette the decidua, in the effort to remove the cause of the disease, for by so doing fresh channels of infection were opened up, and through these

<sup>1</sup> See page 304 of this JOURNAL for March.



the streptococci were apt to gain access to the general circulation.

Up to the very commencement of labor it could hardly be said that there was any agent which could produce true puerperal septicemia. He doubted very much if true puerperal sepsis was ever produced by an infection with the colon bacillus. Any abscess situated close to the uterus or tubes might give rise to puerperal infection. He would not deny that a person who had been subjected to much mental worry or depression during pregnancy might be more susceptible to puerperal infection, but mental depression in itself could not be considered an etiological factor in puerperal septicemia. It had seemed to him possible for autoinfection to occur under certain circumstances. For example, the change of position of the parturient woman was sufficient to allow of the sucking-up of air into the vagina; and this might account for certain otherwise obscure cases of puerperal infection. The rupture of a pyosalpinx or of an abscess of the ovary might be a source of puerperal infection, provided the abscess contained staphylococci. He did not believe that irrigation of the uterus would cause septic infection, unless the staphylococci or streptococci were directly introduced on the instruments used.

DR. H. C. COE said that the question of the value of prophylaxis in operative surgery had been thoroughly settled, but, strange to say, the same principles were not applied to obstetrics as to gynecic surgery. Those who had been in practice ten years or less could not realize the difficulties of taking care of septic cases according to the old methods. The old way was to irrigate the uterus every three hours, and he could recall vividly the wear and tear and the sleepless nights involved in carrying out this mode of treatment. Prophylaxis in obstetrics was simply surgical asepsis; the field of the operation must be absolutely sterile, and everything coming in contact with it must also be absolutely sterile. Each obstetric case was really an aseptic operation, and there should not be and would not be any uncertainty about the result were it not that less care was taken in preparing these cases than in other fields of surgery. It was very easy to carry out aseptic principles in hospitals, but in private practice it was extremely difficult, and one whose practice was limited to obstetrics and gynecology was apt to be too hard on the physician in general practice, particularly where the patients were poor and lived in filthy tenements. Theoretically, if the external genitals were rendered absolutely sterile and the hands of the examiner were sterile, sepsis should not occur, as cases of autoinfection were so very rare that they might be neglected. The same care should be taken in the cleaning of the hands before an obstetric examination as would be taken before operating, and this cleansing should be repeated each time before making an examination. This meant that the examinations would be few, and this was desirable, although he did not go so far as to advocate entire reliance upon external palpation. His own plan was not

to give antepartum or postpartum douches except for special indications, but to have the external genitals scrubbed, under his own supervision, and to have the patient kept on an obstetric pad the whole time. Even prominent obstetricians were at the present time divided in their opinions regarding the best methods of sterilizing the genitals at the time of confinement. The general practitioner should remember that he had no right to go from any case of contagious disease, or from any septic case or septic operation, or from a postmortem examination, to a case of labor. Where it was imperative to do so, he should sterilize his hands just as thoroughly as if they were to be put into the abdominal cavity.

DR. S. MARX said that elevation of temperature and increase in the pulse rate alone, occurring in a puerperal woman, must always be looked upon with suspicion, and the diagnosis must ever tend to lean toward a septic process or condition until that condition could be absolutely excluded; and yet, in the large majority of cases, this exclusion would influence his diagnosis but very little, as he believed that almost all complications of the puerperal period were septic in character, or bordered so closely on that state that a differential diagnosis, at least to the honest observer, was well-nigh impossible. His principal guide in the management of the puerperium had always been the pulse rate, seldom the temperature. He had always made it a rule to note the rapidity of the pulse on several occasions during the gravid state. A woman's normal pulse might be a very slow one—say about 40—and if during the puerperal state a rise to 80 or 100 were noted it would excite the gravest apprehensions, whereas if the pulse ordinarily were not so slow this rate of 100 or less would not signify. He had seen a septic puerpera die with a pulse that was never above 120, and yet in another patient this very moderate increase in the pulse rate would have been equivalent to a pulse of 160 or 180. In examining a suspicious case a thorough physical examination should always precede the local examination, unless positive evidence were present which would absolutely exclude all but a septic condition. The breasts were particularly likely to give such disturbances as to mislead the examiner in making an incorrect diagnosis. A mastitis or a slight lobulitis he had more than once found to be the cause of serious disturbances in patients whose uteri had been thoroughly and religiously washed out for a supposed infection. In such a case an ice bag and the use of general sedatives would cause the apparently serious condition to disappear. Under the same category might be placed fissured nipples, torpid and overloaded bowels, and physical suffering of various kinds occurring independently of the puerperal state. When a general cause for the disturbance could not be found it must be assumed that the patient was septic, even though the examination of the pelvis were negative. In making the differential diagnosis it was well to note the various manifestations which were likely to appear during the course of a puerperal sepsis, and to this end a proper classification

of such disturbances was absolutely essential. He recognized two varieties of puerperal sepsis, viz., (1) local and (2) general. Under the first head came sapremia and septico-sapremia; under the second were (*a*) the lymphatic, (*b*) pyemic or phlebotic, (*c*) the septico-pyemia, and (*d*) acute virulent septicemia. This classification was purely arbitrary and arranged simply for convenience. These different varieties were seldom distinct entities, being often combined and merging the one into the other. The diagnosis of a local septic condition, the so-called sapremia, was readily made. A direct visual inspection of the genital tract would reveal patches of unhealthy, grayish, and malodorous tissue and all the parts painfully swollen. These patches were to be differentiated from bichloride patches by remembering that the latter did not give rise to general disturbance, were of a yellow color and very superficial, and by remembering their causation. Their differentiation from local diphtheria was evident from the presence of the bacillus in diphtheritic patches, from the more profound general depression, and from the great rarity of true diphtheria in this part. He had personally met with only two cases of such local diphtheria. A careful inspection of the perineum was of great importance, since virulent septic processes might arise from a central sloughing of this part without there being any evidence superficially. It was wise in all these cases to at once remove sutures, even though there were no tumefaction or edema pointing to infection from that source. The external surface might be perfect, and yet the central portion be the nidus of a malignant sepsis. By a speculum examination one could always exclude or confirm pathological states in the cervix. In true sapremia, or decomposition sepsis, there was a stinking discharge resultant and dependent on retained and decomposing secundines. In addition there were the high temperature, the relatively low pulse, and, on digital examination, the presence of foreign bodies. The puzzling cases in this class were those in which there was no foul discharge. His experience might have been exceptional, but in the cases of this kind that he had seen there had been, as a rule, entire absence of fetid lochia. Under such circumstances the diagnosis could only be made by direct physical exploration of the organ, which would reveal the presence of retained tissues. The diagnosis of a septic sapremia could be readily made when, from the history of the case, there had been evidence of a sapremia, in which, though relieved by direct physical treatment, a low fever persisted. This might or might not be accounted for by bilateral disease of the appendages, a cellulitis, or a true pelvic peritonitis. The exact diagnosis must rest on the results of direct physical examination. But it was in the cases of general sepsis that the greatest difficulty was experienced in making the diagnosis; in some it could only be done by careful exclusion. Our main guidance must ever be the rapid, small pulse and the low temperature, both of which were out of proportion to each other, together with the general physical condition of the

patient. More often than not there was absolutely no evidence of a local nidus for the source of the sepsis. The uterus would be found small and fairly contracted, and the examining finger would find its interior as smooth as velvet. The lochial discharge, though diminished in quantity, was normal as to odor. Gradually by exclusion the anxious physician arrived at the diagnosis of true acute puerperal septicemia, and this diagnosis was certified to by the gradual diminution in the function of the kidneys, the profuse sweats, and the increased rapidity of the pulse. A positive diagnosis could only be made by finding the streptococci in the blood, and this examination should never be omitted in these days of exact science, as it could be obtained at a minimum cost and in a remarkably short time. In the phlebotic or pyemic form one would notice at the outset the enlarged and painful uterus, the desperate condition of the patient, the irregular fluctuations in the temperature, and the very great rapidity of the pulse. Yet even this apparently typical picture might be confounded with other disorders, so markedly did the puerperium influence and modify other infectious processes. An example of this was to be found in the occurrence of typhoid fever, which, when complicating the puerperal period, often ran an irregular and atypical course, necessitating a resort to an examination of the blood in order to make a positive diagnosis. One of the commonest subterfuges was the diagnosis of puerperal malaria in cases of pyemia. The term "puerperal malaria" was a misnomer, for there was no such disease. The proper term was malaria during the puerperium. To his mind this complication was extremely rare, and should only be thought of when its features were perfectly characteristic. When this complication exists it almost always appears late, at the end of a week or ten days, and runs a fairly typical course. It occurred in women giving a distinct history of malaria past or present, and it was well for the physician to be sceptical until the plasmodium had been found in the blood, or the therapeutic test with Warburg's tincture or quinine proved convincing. The typical cases of virulent acute septicemia gave a very confusing picture, so that the correct diagnosis was often not made until they had completed their lethal course, a period often of not more than twenty-four to thirty-six hours.

The following might be considered a typical history of such a case, as taken from autopsy notes: A healthy primipara in labor with a breech presentation for forty-eight hours. When the os is fully dilated under chloroform narcosis a direct extraction is undertaken. There is no unusual loss of blood, but the patient is considerably shocked by this simple manœuvre. The history of the case, in order to account for the collapsed state of the patient, would indicate some major lesion of the puerperal tract, and, having in mind a uterine rupture, a direct exploration is undertaken, but nothing is found. In spite of active treatment the patient does not rally. There is no elevation of temperature, the abdomen is flat and doughy,



and the uterus is well contracted. Physical examination of the heart and lungs is negative. There is persistent vomiting, and the pulse is extremely rapid and feeble. Death occurs at the end of twenty-four hours, or three days from the commencement of labor. The autopsy reveals an acute general septic peritonitis. There is no tubal or ovarian disease which might have produced these sudden symptoms by a rupture of an abscess into the free peritoneum. The symptoms which this case presented were fairly classical and stood out as a good picture of a case of septicemia of the most virulent form. In the absence of severe hemorrhage or rupture of some part of the genital tract, and in the face of a very rapid pulse and a normal or subnormal temperature, such a virulent septic process should be suspected, even though the abdomen were flat and soft and other typical symptoms were absent.

There was still another variety of sepsis—the so-called late septic infections. If these cases were carefully investigated many of them would be found to be, not cases of late septic infection, but examples of infection of such mild character that the true nature of the case had been overlooked in the early days of the puerperium; in other words, late septic infection was rare, and was nearly always a continuation or an exacerbation of an early sepsis. But in the true cases of late sepsis there was a mild sapremia, occurring between the tenth and fourteenth days. Up to this time the patient would be absolutely well. The underlying condition was a mild endometritis, with swelling of the tissue in the neighborhood of the internal os, producing a stenosis at this point with retention of lochia. In this way the uterine cavity became filled with lochia, which, not being able to escape rapidly, putrefies, and the result was absorption and systemic infection of a mild type. The diagnosis could be made by noting the sudden absence of lochia, the enlarged, heavy, anteflexed fundus, painful on pressure, the subfebrile temperature and the rapid pulse, and by the fact that when the finger was pushed through both the external and internal os there would be a gush of foul lochia.

DR. H. McM. PAINTER said that our experience with typhoid fever and pneumonia had led us into the habit of cutting down too much the quantity of food given to people suffering from sepsis. He could see no reason why a woman suffering from puerperal sepsis should not have such solid food as her stomach could manage. The presence of the elevated temperature alone did not seem to him a sufficient reason for denying her food; it certainly was not so considered in cases of tuberculosis. He personally believed that the alimentation should be pushed just as far as possible, using, of course, highly nutritious and concentrated and easily assimilated food. He would recommend beef juice and some of the preparations of beef containing a fair percentage of alcohol. This feeding of the patient seemed to him exceedingly important. Apart from the indication given by the pulse itself, it seemed to him that these patients did much better with a small quantity of

alcohol than without it, and accordingly he was willing to give the alcohol even before the pulse indicated the necessity for a heart stimulant. If the patient were receiving one of the beef and alcohol preparations this would be sufficient. The old combination of ergot, digitalis, and quinine had always seemed to him a most valuable one. As a student he had been taught to use it as an excellent means of securing good uterine contraction after delivery. This combination was now on the market in tablet form. He was not prepared to say that the administration of this tablet could prevent, to any great extent, the occurrence of infection, but he was positive that the uterus under such medication drained very much better, and this, in itself, was quite important. A very common condition in puerperal sepsis was a flabby, retroverted uterus, in the fundus of which was an accumulation of lochia. The digitalis in the combination referred to simply aided the general circulation, and the quinine, he thought, acted simply as a constitutional tonic. Quinine was almost as useful as alcohol in the constitutional treatment of puerperal sepsis. The quinine, of course, should not be pushed to the point of cinchonism, but should be given in small tonic doses. Another point in the treatment which he would emphasize was the use of fresh air and sunlight.

Regarding the antistreptococcus serum the speaker said that it could be of no use except where the infection was due to the streptococcus. He knew of a number of cases in which the colon bacillus had been found in the uterine cavity by the use of a swab that was without question sterile until it touched the fundus of the uterus. He was sure that there were many cases of puerperal septicemia which were due to infection with other micro-organisms than the streptococcus. The streptococcus serum itself was very unstable and unreliable. It should be remembered, also, that no such serum was likely to be of any avail after the appearance of the streptococci in the blood in considerable numbers. The pulse rate, and not the temperature, should be the physician's guide in estimating the prognosis in puerperal sepsis. He knew of no other condition in which antipyretic drugs acted more harmfully than in puerperal sepsis. Even when these had been used in moderate and reasonable doses he had observed the greatest prostration. If it seemed imperative to control the temperature in a case of puerperal sepsis it should be done by the use of baths. A very recent method of reducing the temperature in these cases was by a cold intrauterine douche (at 80° F.) or by prolonged lavage of the rectum.

DR. HERMANN J. BOLDT, speaking of the surgical treatment, said that this kind of treatment must be limited to the cases of local sepsis. He believed that the curette was used altogether too often; one had no right to use it in ordinary septic endometritis. When there was a local infection due to adherent remnants of placental tissue the curette might be allowed, but its use even in these cases should not be attempted except by

those who thoroughly appreciate the harm as well as the good that might be done by such interference. Personally he considered the finger better than the curette for this class of cases. It was exceedingly difficult to differentiate between a gonorrheal infection and an ordinary puerperal sepsis in many cases. Where the tubes were distended with pus they should be emptied by surgical means, but the other forms of tubal inflammation would not require such interference. He could confirm what had been said about the grave prognosis in cases in which the pulse became small, rapid, and compressible.

DR. PHILANDER A. HARRIS objected to the acceptance of the definition of puerperal infection given by Dr. Mundé. We should consider, he said, morbidity as well as mortality. Dr. J. W. Williams had reported that of the 44 cases in the Johns Hopkins Hospital in which the temperature had reached 101° F., staphylococci had been present in 3, streptococci in 8, the colon bacillus in 6, and the gonococcus in only 2. He thought it was safe to assume that all elevations of temperature after the first twenty-four hours were due to infection of some kind. Internal examinations in obstetric cases, he thought, should be made as seldom as possible. If it were true that the upper portion of the vagina was generally aseptic, it would seem safer to cleanse the external parts and the examining fingers and avoid postpartum douches.

DR. W. EVELYN PORTER spoke of the value of early and persistent irrigation of the uterine cavity at short intervals, and claimed that its use would save many lives.

DR. A. ERNEST GALLANT described the preparations made by a physician in an effort to secure for his wife an aseptic confinement. Three months before the expected event the third floor of his house was recovered with hard-wood flooring; the walls, ceilings, and doors were enamelled, and glass knobs were placed on the doors. New furniture of the hospital type was purchased. The vulvar pads, eye-wipes, absorbent cotton, tape, and other materials were sterilized and were delivered at the house in a sealed package. A set of instruments was purchased, and a gas stove and fish-kettle were provided so that the instruments might be boiled at any time. Sheets, towels, gowns, and clothing to be worn by the patient were sterilized in steam for two hours. The rooms and everything intended for use during the labor were exposed to formalin gas. The patient was prepared as was usual for vaginal operations. The nurses wore cotton gloves and the accoucheur rubber gloves during examinations and labor. The latter was instrumental, owing to rupture of the membranes before the completion of the first stage. The patient did well, however, and at the end of the second week was taken to Atlantic City.

DR. ROSENBERG closed the discussion. He said that it had been with a definite object in view that he had discarded the term "puerperal fever" and had used instead what seemed to him a more correct expression—puerperal infection. The use of the term "puerperal fever" always led to the erroneous

impression that one had to deal with a specific disease, like typhoid or malarial fever, diseases which were due to specific micro-organisms. If modern investigation had demonstrated anything, it had proved conclusively that puerperal infection was not due to one specific micro-organism, and that various types of bacteria might produce puerperal infection having all the characteristics of the complication formerly described as puerperal fever. It was true that streptococci and staphylococci were most frequently at fault, but a number of well-observed cases were on record in which colon bacilli, bacteria of putrefaction, and numerous unidentified micro-organisms had produced virulent and often fatal puerperal infection. He would, therefore, take exception to the proposition to limit so-called puerperal fever to streptococcus and staphylococcus infection. This would necessitate a bacteriological examination before a final diagnosis could be made, which was neither practical nor necessary. He would class as puerperal infection all infections occurring during the puerperium, and which were facilitated by the peculiar conditions of the genital tract during this period. He would exclude the exanthemata and such diseases as pneumonia, typhoid and malarial fevers, which were not in the least predisposed to by the puerperal uterus. He had also used the expression "puerperal infection" to include the large number of cases having a tendency to get well without any treatment, and which were often made worse by too much interference. There was a wide difference between the conditions under which an operation was commonly performed and those met with in a confinement. An operation rarely lasted longer than one hour, while most obstetric cases extended over a period of twenty-four hours or more. The operative field during an operation was always under absolute control and supervision, and every source of infection could be successfully excluded. In this connection it was well to remember that some women had to urinate every fifteen or twenty minutes, and also had a constant desire to empty the bowel. It was all very well to advocate sterilization of the vagina and vulva and placing an aseptic pad over the parts. While this might be possible in a few lying-in institutions or in a limited number of cases in private practice, in ninety-nine per cent of cases it would be absolutely impossible. As stated in the paper, the woman's system could take care of all the bacteria which were normally present in her genital tract, but she succumbed to puerperal infection because new crops of bacteria were introduced into the vagina during labor. This was usually effected through unclean fingers and instruments, and it was for this reason that he maintained that to practise safe and aseptic obstetrics one needed only to work with absolutely clean fingers and instruments. By clean fingers are meant fingers that had been thoroughly disinfected with soap and water, alcohol and strong bichloride solution, the process occupying at least five minutes. The instruments must be boiled. If this disinfection of the hands was repeated before



every examination, as it should be, frequent examinations would not be possible, because the hands would soon protest.

In the diagnosis of puerperal infection, he fully agreed with Dr. Marx that too much stress could not be laid upon the condition of the pulse. It was the disproportion between pulse and temperature which was especially alarming, and was usually a very serious prognostic sign. He had seen patients die with a temperature of 99° F., but in these cases the pulse had been exceedingly rapid and almost imperceptible. Again, he had observed cases with a temperature of 104°, which had not in the least alarmed him because the pulse had been slow and strong. A rapid and small pulse indicated a great shock to the nervous system, usually the consequence of toxins within the circulation—indeed, he would state that the pulse rate was proportionate to the virulence of the infection. He agreed with Dr. Painter in advocating the administration of ergot. It had been experimentally proved that in the well-contracted uterus infection was less likely to occur or to spread than in the soft, flabby organ. He was, however, in the habit of giving teaspoonfuls of ergotole every two or three hours until well-marked contraction had been obtained, after which the dose could be diminished. The use of antipyretic drugs could not be too emphatically condemned. The reduction of the temperature by these drugs was most harmful, not only because of their depressing effect upon the heart, but because they tended to obscure the symptoms. If the temperature must be reduced, it was best accomplished by cold baths, which not only reduced the temperature, but also had an excellent effect upon the nervous system.

He had had no personal experience with the serum treatment, and the evidence for and against it was certainly quite conflicting. It had been proved, however, that streptococcus infection could only be influenced by antistreptococcic serum, and that for staphylococci, the colon bacilli, and other micro-organisms their peculiar antitoxin was required. The great difficulty with successful antitoxin treatment was that most cases of puerperal infection were mixed infections, *i.e.*, that various types of bacteria had invaded the system. If the infection had become general and the micro-organisms had spread throughout the circulation, absolutely nothing could be gained by opening the abdomen or removing the uterus. The prognosis in these cases was decidedly unfavorable, although at times the patient might be kept alive until the micro-organisms had lost their virulence. As to the removal of the uterus, he preferred to express no further opinion, as he had had no personal experience with this operation in these cases. However, in studying the published cases he had been almost led to believe that most of these cases would probably have recovered even if the uterus had not been removed.

In cases of septic endometritis the finger should be used to remove the decomposing fragments, and the curette only in exceptional cases. Curetting of the puerperal uterus was usually

described as a simple operation, but he confessed to using this instrument always with a great deal of fear. The many disastrous results following the operation, even in the hands of experts, proved that it was not quite so easy and harmless as commonly supposed. There had been a time when continuous irrigation of the uterus had been well thought of. This method had been recommended years ago by Schücking. The results had not been very favorable, and he believed it had been abandoned by most obstetricians. Much might still be added to this interesting and important subject. Intravenous saline injections had been employed in quite a number of cases of well-pronounced infection, with apparently excellent results. The method advocated by Credé of impregnating the system with silver salts would also bear further investigation.

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## BRIEF OF CURRENT LITERATURE.

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### OBSTETRICS.

**Prophylaxis of Puerperal Eclampsia.**—C. Merletti<sup>1</sup> gives the results of his experiments upon pregnant rabbits. To produce acute intoxication he injected hypodermatically three grammes of ammonium carbonate in ten grammes of distilled water, on the three following days increasing the dose to four, five, and six grammes. On the fourth day there were tonic-clonic convulsions followed by coma. There were three attacks in one hour, and then the animal died.

To produce chronic intoxication he injected one gramme of the same substance in ten grammes of water for five days, then raised the dose to two grammes for five days, to three and to four each for the same period, and then up to five; on the second day (or twenty-second of experimentation) the animal died. The lesions found in the acute case were: in the liver, granular degeneration of the cell protoplasm, and a spongy condition of the cells surrounding the central vein; in the kidneys, slight granulation of the epithelium of the convoluted tubules, venous stasis, and some few hemorrhages, chiefly intertubular; in the placenta, a few hemorrhages of no importance.

In the chronic form, in addition to parenchymatous necroses in the liver, there were also extensive hemorrhages, chiefly subcapsular, which caused considerable cellular destruction; in the kidneys the granular condition of the epithelium of the convoluted tubules was in a much more advanced stage, and the hemorrhages of the glomeruli and canaliculi were extensive; the placenta was about as in the acute form.

Cellular necrosis appears to be the chief characteristic of the acute and hemorrhages of the chronic forms. We must look to future work in physiological chemistry to explain by showing us what are the intermediate products in the nitrogenous

exchanges, the relation of cause and effect between the toxic elements, and the clinical and anatomical manifestations of eclampsia. As to the cause of the hemorrhages, Merletti, acting upon Tibone's suggestion that they might be due simply to the great disturbance of the circulation and of innervation during the convulsion, killed three chronically intoxicated animals just as the convulsions were ending, and in none of them did he find hepatic or renal hemorrhage, but only stasis and venous ectasis and necrosed epithelium. It may therefore be considered to be an established fact that "profound intoxication, by the excess of incomplete urea in the blood, causes convulsions of a clonico-tonic nature of cortical origin, and even the death of the animal, with parenchymatous degenerative lesions alone, or with grave hemorrhages, according to whether it be acute or chronic. In chronic poisoning the hemorrhages occur only after the convulsion, their predisposing cause being a degenerative process in the tissues near the central vein, and probable alteration of the endothelium of the blood vessels due to prolonged action of the poison in circulation and increase of arterial pressure during the convulsion."

Other experiments demonstrated the fact that an excess of carbonate of ammonium in the circulation did not produce convulsions unless the ureter was tied, thus providing mechanical obstruction to total elimination of the urine. The practical points to be learned from the above experimentation are: (a) the most rational and efficacious treatment of eclampsia consists in prophylaxis. (b) This should be so directed as to facilitate the process of the nutritive exchanges, especially of nitrogenous substances, and to put the digestive and urinary systems into the best possible condition for the performance of their functions. Prophylaxis will therefore be hygienic, medical, and obstetrical. For the first we must secure good pulmonary ventilation, and a good dietary consisting of articles that are easily digested and readily oxidized, non-constipating and non-toxic.

Medical prophylaxis will have for its aim to diminish the toxic substances and reduce the degree of toxemia by diluting, neutralizing, or removing the circulating toxin, and to assist and complete the processes of organic metamorphosis. Bland purgatives, enteroclysis, and chlorido-lactic lemonade are all useful for this purpose. Serotherapy is the desideratum of the future. Bleeding should be reserved for treatment of the convulsive attacks. Hot or vapor baths are the best diaphoretics; milk or chloral the best diuretics. Saline transfusions in hypodermoclysis and enteroclysis are indicated. The Tesla current may give us a new therapeutic agent. All obstetrical manœuvres should be preceded by the pharmaceutical and hygienic measures just mentioned. If recovery be delayed and there are casts and urobilin in the urine, intervention will be necessary. During the period of dilatation the genupectoral position may be tried to diminish the vesico-ureteral pressure; expulsion should be aided by the means known to conservative

obstetrics, nervous excitement being allayed by morphine or chloral, but never by chloroform.

**New Method of Inducing Premature Labor.**—P. G. Spinelli<sup>1</sup> claims that the good results which he has obtained by his method justify its description. The instruments needed are: an ordinary irrigating syringe with vaginal canula of glass, a heavy speculum, toothed traction forceps, a pair of forceps about 16 centimetres ( $6\frac{2}{5}$  inches) long, a metallic dilator, a metre and a half of aseptic gauze steeped in glycerin and ammonium ichthyolate (10 per cent), and two metres of dry aseptic gauze. The usual preparations of the patient for operation are made; then the posterior lip of the cervix is drawn down, and if the cervical canal be contracted, as is sometimes the case with primiparæ, it is dilated by means of Simpson's trivalvular speculum, or an ordinary dilator, or even a long pair of forcipressure forceps. The index finger is next introduced and carried in beyond the internal os. When it reaches the membranes it should be crooked, with the palmar surface toward the uterus, and gently detach the membrane from the inferior segment of the uterus. The wet gauze is now introduced on the index finger and gently carried higher and higher between membranes and uterus. It will succeed in detaching the membranes when the finger alone is unable to do so; this the author has ascertained to be a fact, and has introduced as much as a metre of the gauze. The forceps is now removed and the vagina plugged with the dry gauze, and a T-bandage put on over all. The patient may remain in bed or on a lounge, or may walk about if she so desire. Contractions usually begin soon after the introduction of the gauze, which is doubtless due to the action of the glycerin on the muscle fibre. Labor once started, it usually comes to an end in about ten hours. When dilatation is far advanced both vaginal and uterine gauze are expelled, and this should be taken as a sign of the near approach of parturition, which usually occurs in half an hour, or in an hour at most. Expulsion of the placenta is usually normally accomplished. The author claims these advantages for his method: that it does not require any special instrument, that it is easily applied by any practitioner, that it causes parturition in a few hours, and that, when all proper aseptic and antiseptic precautions are observed, the mother is exposed to no danger.

**Bivitelline Twin Pregnancy.**—Three days after a normal delivery Porak<sup>24</sup> removed from the uterus an ovum of about two months, closed but containing neither fetus nor liquid. A portion corresponding to an atrophied placenta contained chorionic villi.

**Therapeutic Abortion.**—A. Pinard<sup>22</sup> holds that interruption of pregnancy before the fetus is viable is not indicated in cases of pelvic contraction or of diseases complicating pregnancy, but only when the life of the mother is seriously menaced by conditions due to the pregnancy itself. Under these circumstances it is not a question of sacrificing the fetus, which



is certain to be lost in any event, but of saving the life of the mother.

**Ectopic Gestation.**—J. H. Ferguson<sup>6</sup> reports a case of the above variety on which he operated for an ectopic gestation. On the left side he found a characteristic tubal pregnancy. On the right side he found an irregular nodular swelling, attached by a narrow pedicle to a very much dilated and tortuous tube, which was adherent to the fundus of the uterus. This sac proved to be lithopedion, and was filled with the bones of a four-months fetus. The patient gave a history of having had amenorrhea for four months, four years previous to the operation.

**Treatment of Prolapse of the Uterus.**—J. I. Parsons<sup>4</sup> describes the following operation, which he has found very efficient: The patient is placed in the lithotomy position. The vagina is thoroughly douched and rendered as much aseptic as possible. The perineum is then retracted with either Auvar's or Sims' speculum. Another retractor is then used to hold up the anterior wall of the vagina, if necessary. The lateral walls are then exposed. The uterus is held with one hand as nearly as possible in its normal position by a probe passed into its interior. With the other hand injections of a solution of quinine are made on each side through the vaginal wall into both broad ligaments on a level with the external os and from about three-quarters of an inch to an inch from the junction of the vagina to the cervix. After the syringe and speculum have been withdrawn it is necessary to keep the uterus up with a cup and stem pessary, held in position by four tapes tied round the waist. This is left in position for three or four days and is then removed. A special syringe with a long, thin nozzle is a great convenience, because it does not obstruct the light and it enables the operator to see that the needle point pierces the vaginal wall at the right point. The needle should not be more than an inch in length or much thicker than a hypodermatic needle, in order that the puncture may close quickly. The injections of quinine set up a slight inflammation and adhesions are formed. He reports ten cases on which the above treatment was tried with very good results.

**Retrodisplacement of the Pregnant Uterus.**—Malcolm Storer,<sup>21</sup> in discussing this subject, states that up to the tenth week there are no symptoms of any consequence. Urinary disturbances are apt to be the first thing noticed. There is more or less interference with micturition, which goes on to actual retention. Constipation exists in a large number of cases. This may be reflex, but is generally due to the pressure; the greater the flexion of the uterus the less is the pressure on the intestines. The bladder is more disturbed by the upward pressure of the cervix than by the pulling on the urethra. Upon examining a case of incarceration an exaggerated discoloration of the vulva is apt to be seen, and also a marked bulging of the perineum. There is little of the usual softening of the cervix which accompanies pregnancy. In some cases

there is an enormous hypertrophy of the cervix. The cervix may disappear behind the pubes. The retrodisplacements are often corrected as pregnancy advances; but if there is an incarceration the pregnancy may go on to full term, the uterus becoming sacculated, but abortion generally takes place. The first step in the treatment is to empty the bladder, which may be very difficult to do; next try to replace the uterus by manipulation. Most methods are based on the principle of depressing the cervix either by traction from below or by shoving it down from above, while at the same time the fundus is elevated, causing the uterus to revolve upon itself, rather than attempting to force it up bodily. Elastic pressure in the form of water bags in the rectum or vagina has sometimes been of service. Soft pessaries may be used. If repeated taxis fail open the abdomen, and the retrodisplacement can usually thus be easily replaced without any great danger to the mother and making the prognosis for the child better.

**Spontaneous Rupture of the Uterus during Labor.**—Ernesto Pestalozza<sup>2</sup> says that the conditions determining this accident are found in some obstacle encountered by the fetus in the canal along which it is travelling. The canal may be too narrow or the fetus too large, or else both may be normal but their diameters may not correspond. Ruptures are most frequently found in cases of vicious formation of the pelvis, hydrocephalic fetus, or shoulder presentation (unfavorable relation of diameters). Given one of these causes capable of preventing expulsion of the fetus from the uterus, strong uterine contractions may create a new path for expulsion by overcoming the resistance of the uterine walls at the point of least resistance. The inferior portion of the organ is the zone which becomes weakened during labor, and even during pregnancy, and is the part ruptured by the force of the muscular contractions. The superior portion of the uterus is strongly muscular, and given the closed cervix of the early stages of labor, it is natural that the more passive segment should become weakened by the expulsive efforts. Usually the bag of waters next overcomes the resistance of the cervix, and pressure is thus removed from the weakened zone, the fetus being finally expelled through the opening found, except when the obstacles referred to above are encountered. The author reports a case, from the course of events in which he concludes: 1. That spontaneous, typical rupture may occur without any apparent prodromal stage. 2. To rupture the inferior segment of the uterus a force equal to that which ruptures the membranes will suffice. 3. Such extraordinary weakness of the inferior segment may be due to a scarcity of muscle cells, which are replaced by connective tissue. 4. Rupture of the uterus may occur from intrinsic force alone, without rigidity of the cervix. 5. Rapidly performed laparotomy constitutes the best therapeutic intervention, and the uterus can be entirely removed or the wound simply sutured.

**Dangerous Thinning and Elongation of the Lower Uterine Segment.**—R. L. Dickinson<sup>19</sup> reports several cases of labor complicated by a marked elongation and thinning of the lower uterine segment. *Case 1.*—High up in the uterus and admitting three fingers, a well-defined constriction was prominent. This ring was between twelve and thirteen inches up the birth canal. *Case 2.*—There was a great thinning and rupture due to a hydrocephalic child. *Case 3.*—Impacted shoulder. The retraction ring was at the level of the navel, but the lower uterine segment was so short that after delivery of the child the space between the retraction ring and external os covered less than the length of the body of the third lumbar vertebra and upper part of the fourth. The vagina was stretched up to this point for five hours. In *Case 5* there was a complete tear of the posterior wall of the uterus large enough to admit the hand into the peritoneal cavity. She was subsequently delivered easily of a small child.

**An Anencephalus.**—Jos. D. Neil<sup>10</sup> reports the case of an anencephalous monster. The child was perfectly formed, with the exception of the absence of brain and skull bones and an epithelial pendulous growth one centimetre from the left angle of the mouth. There was a history of strained marital relations. The mother was said to have exclaimed that she hoped God would make her child headless.

**Anomalies of Genital Organs.**—P. Delagenière<sup>22</sup> reports a case in which operation for supposed imperforate vagina and double inguinal hernia demonstrated the existence in the latter of undescended testes, while the external genitals were of the normal female type.

**Pulse after Delivery.**—H. Varnier<sup>22</sup> has made a number of observations which confirm the opinion that a slowing of the pulse normally occurs after delivery.

**Cesarean Section.**—G. M. Boyd<sup>19</sup> performed the conservative Cesarean section on a woman with a contracted pelvis which resembled somewhat the funnel-shaped pelvis. The child was large and suffered from ether-narcosis at the time of delivery. The woman had been pregnant six times before, but every time the labor had either been premature or instrumental interference was demanded. All the children were born dead. In performing the conservative Cesarean section the uterine incision should be as small as is consistent with easy delivery of the child, great care being observed in making it longitudinal to the long axis of the uterus. The child should be delivered through incision slowly, in order that the uterus may be given a little time to contract upon its contents. See that the uterus is well contracted upon the placenta, then it can be slowly removed. By following this course there will be less danger of hemorrhage and failure of the uterus to contract, necessitating hysterectomy.

**Celio-hysterectomy.**—A. H. Buckmaster<sup>17</sup> performed celio-hysterectomy on a very much deformed negress and

delivered her of a live child. External measurements were as follows: Interspinal, 8.5 inches; intercostal, 9 inches; Baudelocque's diameter, 6 inches; left oblique, 7.5 inches; right oblique, 8 inches; diagonal conjugate, 2.75 inches. The left part of one ovary in place. The woman was 3 feet 10 inches high.

**Ovarian Castration.**—Ermanno Pinzani<sup>1</sup> publishes the results of experimental researches upon certain modifications caused in the nutritive exchanges and the composition of the blood by the removal of the ovaries. He sums them up as follows:

1. The elimination of nitrogen by the urine is moderately and gradually diminished.
2. The nitrogen contained in the fecal discharges is much lessened, which would suggest that there is more active absorption of nitrogenous substances.
3. There is progressive diminution in the amount of urea eliminated in the urine.
4. The amount of nitrogen in the urea relatively to the total amount is increased, but only temporarily, for some little time after the operation it returns to normal.
5. There is no appreciable alteration in the quantity of chlorides eliminated in the urine, but the phosphoric anhydrides become progressively diminished.
6. The number of red corpuscles in the blood is increased and that of the leucocytes diminished (about 917,153 for the red, 1,919 for the white), the difference being too great to render errors in counting supposable.
7. The corpuscular mass increases in volume, as shown by the hematocrit, which confirms the increase noted in the number of corpuscles.
8. The hemoglobin of the blood is greatly increased.
9. The amount of water in the blood is diminished, that of the organic substances increased.
10. In even greater proportion are the mineral matters increased, a fact which, when the diminished amount of phosphates in the urine is taken into account, would suggest their accumulation in the blood.

**Sterilization of Women.**—P. G. Spinelli<sup>2</sup> says that the danger to life of pregnancy and parturition in cases of grave anemia, nephritis, tuberculosis, diabetes, heart disease, and mental ailments calls for decided measures on the part of scientific physicians, and that prophylactic measures to save the lives of these patients should be formulated and discussed in medical societies. He is aware of the fact that opinions differ as to the right of the physician to interfere in some of these cases. In heart affections, for instance, while Peter holds it to be a contraindication to marriage and advises married cardiopaths to avoid pregnancy, other authorities believe that marriage need not be forbidden unless the heart disease causes grave symptoms. Should there be phenomena of asystole, all agree that it is *preferable* not to expose the patient to the dangers of gestation. Louis first called attention to the bad influence of pregnancy upon tuberculosis, and Stolz supported and further developed this view. This applies not only to pulmonary tuberculosis, but to all forms of the disease, especially its localization in the bones and in the uterus and its appendages, which happens more frequently than the majority of



physicians suspect. The evil effect of pregnancy upon albuminuria and chronic nephritis is too well known to need description; the same may be said of diabetes. Chronic anemia often takes on during gestation the form of grave progressive anemia, liable to be fatal to both mother and child. As to insanity in women with a neuropathic heredity, the statistics show that in about sixty per cent of the cases the prognosis is grave as regards a return to a normal condition. The author further holds that the prevention of reproduction in hopelessly degenerate individuals would help solve some social problems.

His processes of sterilization are the following: 1. *Posterior colpoceliotomy with ligature of the abdominal end of the tube*.—The posterior lip of the cervix uteri is drawn downward and forward. The vagina is stretched open by means of a speculum, and a transverse incision made as far as the uterosacral ligament. This is cut and an entrance made into the peritoneal cavity through Douglas' cul-de-sac. The fimbriated extremity of the Fallopian tube may be seized by the forceps without difficulty, and is brought outside of the opening into view. If there are no lesions it is tied with a silk ligature; if diseased it is removed, after tying the tube near to the uterus.

2. *Anterior Colpoceliotomy*.—The vaginal fornix is incised at the point where the vesical wall is reflected upon the uterus. This being detached, the peritoneal cul-de-sac is opened by means of a sagittal suture and the uterus drawn down through the vaginal wound. If the appendages are healthy the tubes are ligated in two places not far from the uterus and then cut in half. If diseased the tubes are removed and the ovaries resected or cauterized. Whichever operation is performed, the peritoneal and vaginal wounds are sutured and the vagina plugged with sterilized gauze, which is removed on the following day and the vagina washed out with a bi-chloride solution. The stitches are removed on the seventh day.

**Local Treatment in Puerperal Infection.**—A. H. Wright<sup>13</sup> in puerperal infection cleans and inspects the vulva and vagina carefully, using a speculum and being sure that every portion is seen. If the surface of the cervix is clean and the cervical lochia are sweet, he does not invade the uterine cavity. If decomposition of clots or lochia is found in the vagina he uses an antiseptic vaginal douche twice a day (a one per cent solution of lysol, creolin, or carbolic acid). If so-called diphtheritic patches are found in the vagina or on the cervix, he applies once a day a twenty or thirty per cent solution of carbolic acid and dusts with iodoform. If sutures have been introduced for torn perineum he generally removes them. When the uterine lochia are offensive he places the patient under an anesthetic and scrapes away all debris from the uterus with his finger. He then washes the uterus out with hot water (110° to 118° F.) or with a weak antiseptic solution. He packs the uterine cavity tightly and the vagina loosely with iodoform gauze. He leaves this gauze in from twenty to forty-eight hours. If the temperature and pulse become normal and remain so, no

further treatment is required; if they do not remain normal, repeat the treatment.

**Local Treatment of Intrauterine Sepsis.**—A. Groves<sup>13</sup> advises the following treatment for intrauterine sepsis: First remove all fragments of placenta with the finger nail—never curette. Next pass a cylindrical glass or hard-rubber tube into the uterus and wash it out thoroughly with warm water. When the water comes away clear, inject tinctura ferri perchloridi into the uterus. This makes the uterus contract, and expels the fluid through the tube without it having come in contact with the vagina. The uterine cavity is again washed to remove the iron. This treatment should be repeated every thirty hours. The objects of the iron are: first, it is antiseptic; second, all absorbents are sealed up so that septic matter, if present, cannot be absorbed; and thirdly, the uterus is stimulated to contract. He reports four cases treated as above, which all recovered.

**Suppurative Puerperal Peritonitis.**—R. M. Funkhouser<sup>12</sup> reports a case of suppurative puerperal peritonitis, complicated by nephritis, on which he performed celiotomy. In this patient at the time of operation there was excessive ascites, the abdomen being greatly swollen and tense, the limbs and feet very much enlarged, and the vulva distended. The patient made a good recovery from the peritonitis, and the signs of nephritis markedly decreased.

#### GYNECOLOGY AND ABDOMINAL SURGERY.

**Restoration of the Normal Utero-vaginal Attachment in Prolapse of the Vagina.**—R. E. Webster<sup>9</sup> advises the following operation for prolapse of the uterus: The patient being in the lithotomy, the cervix is seized and drawn down, and an incision is made around the cervix, at the junction of the vaginal attachment, down to the muscular tissue, just as in operating for vaginal hysterectomy. The tissues are now dissected from the muscular wall of the uterus up to the normal level of the vaginal vault, which is opened as far as the abdominal peritoneum, which is pushed up, care being taken not to enter the abdomen. This is done all around the cervix. The hemorrhage is slight and easily controlled. A short, curved needle, threaded with chromicized catgut, is now passed well into the tissue of the detached vaginal wall posteriorly, but including the mucous membrane, and carried around longitudinally for about one inch before emerging. It is then passed deeply into the muscular tissue of the uterus at the upper border of the denuded area, and brought out at a point opposite the entrance, into the detached vaginal wall. This is repeated until the cervix is surrounded, the sutures not being tied until all are placed. They are now tied, and the detached vaginal wall is thus replaced high up with this row of sutures. The mucous membrane of the vagina and cervix is sutured by a running suture.

**Abdominal Section under Cocaine.**—H. Robb<sup>16</sup> operated for a retroverted uterus by means of cocaine anesthesia. He opened the abdomen, broke up adhesions, and replaced the uterus and stitched it to the abdominal wall. During the operation it was noticed that any traction on the ovaries was intensely painful. The operation was done under cocaine because the woman was suffering from cardiac trouble associated with goitre.

**Vaginofixation.**—Dührssen<sup>22</sup> defends his method of vaginofixation, which consists of separate suture with catgut of the sagittal incision in the vesico-uterine fold, after placing the fixation suture which traverses the upper extremity of the vaginal incision, the peritoneal opening in the vesico-uterine fold, and the anterior wall of the uterus at the level of the insertion of the tubes. In 352 vaginofixations, which were watched for six years after operation, he has had only 2.3 per cent of recurrences. Of these cases 23 were subsequently delivered at term, and intervention was required in but 2: in one, perforation of abnormally long and rigid cervix; in the other, forceps delivery in a case of rigid perineum in an aged primipara. In those examined before delivery the development of the uterus was normal. In 503 operations by the vaginal route Dührssen has had 3 per cent of deaths.

**Operation for Complete Rupture of the Perineum.**—H. A. Kelly<sup>11</sup> proposes that the ends of the sphincter ani be dissected out and freed, then drawn out about one and a half centimetres from the tissues and the scarred ends cut off. Then the freshened ends are sutured together by two or three buried catgut sutures. In addition to these buried catgut sutures a splinting suture of silkworm gut is passed through the middle of the sphincter near the edges of the wound and on up through the septum, splinting the ends together and taking the tension off the catgut. Great care should be taken not to leave any dead spaces in closing the remainder of the wound in the usual way, in order to avoid all risk of infecting the buried sutures.

**Suppurating Cyst of Vagina.**—M. Lannelongue<sup>28</sup> reports a case of suppurating cyst of the anterior lateral portion of the vaginal wall. From the circumscribed character of the abscess and the absence of involvement of the superjacent vaginal mucous membrane, it was evidently enclosed by a pre-existing wall and appeared to be a cyst, derived from the Wolffian body, which had undergone suppuration.

**Cyst of Posterior Vaginal Wall.**—G. W. H. Tawse<sup>19</sup> reports a cyst of the posterior wall of the vagina. The cyst, when the woman was in the erect position, protruded beyond the labia. The cyst, on account of its thin walls, could not be enucleated, so an elliptical piece was excised from its wall and its contents evacuated and the cavity scraped and swabbed out with 1:10 carbolic solution. The wound was then packed with iodoform. The cyst contained about one and a half ounces of gelatinous fluid. The cavity measured three inches, and, after it healed, caused no trouble at a labor which took place six months later.

**Removal of Fibroids from Pregnant Uterus.**—J. F. O'Shea' removed two subperitoneal fibroids from a pregnant uterus, one the size of an orange, the other about the size of a walnut. She made an uneventful recovery, and her pregnancy went on to term, at which time she was delivered of a perfectly healthy child of eight pounds.

**Uterine Myoma.**—R. L. Heard<sup>18</sup> reports the case of a woman who was suffering from uterine myomata which gave her considerable trouble on account of their size. At a later period she developed Paget's disease of the nipple, for which an excision of the breast was done. After this excision the myomata softened and diminished in size, and the woman was much more comfortable.

**Fibromyomata of the Vagina.**—J. Phillips<sup>9</sup> concludes that vaginal fibromyomata are invariably single and usually slow growing; their situation is most frequently upon the anterior vaginal wall, and they may be sessile or pediculated. They have practically no effect upon menstruation, conception, or the course of pregnancy, but may lead to serious dystocia. Symptoms depend upon size and situation, and are usually due to direct pressure exerted on neighboring viscera. Sloughing is the most common change in the tumor during the life history. Removal is best carried out by enucleation and suture, or stuffing the sac with gauze.

**Inversion of the Uterus.**—G. E. Herman and L. Durno<sup>8</sup> record a case of inversion of the uterus caused by a fibroid tumor. The tumor weighed two pounds four ounces and was attached to the fundus of the uterus. The uterus was easily replaced by taxis after the tumor was enucleated.

**Etiology of Cancer.**—Bra<sup>23</sup> has succeeded, by injecting into animals pure cultures of a fungus obtained from human carcinomata, in producing tumors having the typical structure of fibrosarcoma and of carcinoma. He states also that cultures from these experimental tumors, as well as from natural human tumors, contain the parasite.

**The Cataphoric Method of Destroying Cancerous Growths.**—The cataphoric method of treating cancer, which was developed by G. Betton Massey<sup>3</sup> between the years 1893 and 1896, was slowly evolved from the discovery that mercury in the metallic state, in contact with gold or zinc anodes placed within the flesh, would, under the influence of an electric current, be changed into an oxychloride, which was then radiated throughout the neighborhood of the electrode. The application of this discovery to the treatment of cancer was in the beginning accidental; it was seen at once, when this powerful protoplasmic poison or microbicide was forced into the cells of the cancerous tissue in sufficient quantity, that the latter succumbed at once, being devitalized and necrosed *en masse* near the electrode. Under a sufficient current there was an area of complete protoplasmic devitalization of both cancerous parenchyma and organic stroma near the electrode, surrounded by an area where the diffused chemicals were in



sufficient density to kill the cancer cells without killing the organized tissue in which they were situated, an aseptic, perfectly odorless slough being formed which came away in twelve days to three weeks, leaving the part to heal.

Small growths may be subjected to this treatment painlessly by means of local anesthesia, repeated applications of small doses being at times effective. Larger growths demand general anesthesia, for here we require from 300 to 1,500 milampères, kept up from fifteen minutes to an hour. After the anesthetic passes off the patient is at once comfortable, even if the growth had been a painful one. The cavity produced by the destruction of the growth fills by granulation in from six weeks to three months, leaving a healthy scar.

Some persons who have criticised this treatment without seeing it applied jump to the conclusion that the large currents merely burn the growth out. Such is by no means the case. The process requires moisture, is a strictly electro-chemical diffusion, and the part turns whitish gray and not black.

The advantages of this method in the early stages of a cancerous growth, whether carcinoma or sarcoma, may be enumerated in part as follows:

1. While removing by immediate devitalization and subsequent separation all evident portions of the tumor as thoroughly as the knife, it does more, in following the migrated cells for some distance into the healthy flesh and there devitalizing them, thus destroying the latent roots of dissemination and recurrence.
2. The cancer is removed without cutting or loss of blood, hence patients will submit to it earlier, giving better chances for actual cure before metastasis.
3. As it is now believed that cancer cells may be autografted, this method makes it impossible for the attempt at removal to be followed by an aggravation of the case by reimplantation on the cut surfaces, as occasionally happens with the knife.
4. Should some cells be missed and local recurrence appear, the application may be repeated with greater ease and effect than a cutting operation.
5. As compared with the caustic treatment, the cataphoric method is dirigible, controllable, capable of following the cells beyond the apparent limits of action, and may be finished at once under ether instead of during many days of pain.
6. Finally, its value in non-operable cases should not be neglected. A daily application of 50 to 100 milampères of the combined zinc-mercuric cataphoresis, or a single powerful application under ether, will stop hemorrhage, ease pain, destroy all odor, and bring away such quantities of whitish crumbs from the malignant mass that the patient will fancy that a cure will follow, until the possible advance of a metastatic growth previously planted in the liver or other inaccessible location brings about a fatal issue.

**Vaginal Hysterectomy for Cancer.**—J. Halliday Croom<sup>14</sup> records a list of 14 hysterectomies for cancer in which none of the patients lived more than eighteen months. All of these cases were picked cases and operated on early. He also

cites 3 cases in which vaginal hysterectomy was performed; in all of these cases a recurrence took place, and all of the patients died within a year from the date of their operation, in great pain. Croom states that although his experience in operating on cancer has been unfortunate, it seems to him the duty of every operator, whatever his ability or experience may be, to record his ultimate results, even though the truth so told may tell against him.

**Oöphorectomy in the Treatment of Cancer of the Breast.**—Stanley Boyd<sup>5</sup> reports 7 cases of oöphorectomy done for cancer of the breast. In 2 cases the good results were marked, in 2 others doubtful, and in 3 it was very doubtful if any good was done. On 5 cases he tried thyroid, but it had no evident effect on the cancer.

**Paget's Disease of the Breast.**—H. C. Masland<sup>10</sup> reports a case of Paget's disease of the breast which had lasted for thirteen years. At first the disease was of very slow growth, but the last few years it began to spread more rapidly, and she decided to have an operation. As there was no involvement of the axillary gland, the breast was excised. Fourteen months after the operation there was no recurrence.

**Combined Carcinoma and Epithelioma of an Ovarian Dermoid Cyst.**—F. A. L. Lockhart and D. P. Anderson<sup>8</sup> describe a malignant growth involving an ovarian dermoid cyst. The tumor was a large, irregular-shaped mass, measuring 18x15x14 centimetres. The surface was nodular, the peritoneal covering being greatly thickened and very hemorrhagic. The contents of the tumor was a thick, oily, flocculent fluid containing hair and three teeth. On microscopical examination it was found to be composed mainly of epithelium, which infiltrated extensively the fibrous tissue stroma. Multiple pearl nests were found. At one point the epithelial cells were arranged in alveolar and tubular forms, as in carcinomata, with fibrous bands around them. It was very vascular.

**Cancer of the Cervix.**—C. Jacobs<sup>29</sup> advocates the abdominal route for hysterectomy for cancer of the cervix as permitting removal of adjacent diseased tissue, especially the lymphatic glands. He considers operation by the vaginal route as merely palliative. He rejects, however, any abdominal operation in advanced cases with severe radiating pains and involvement of the parametrium.

**Carcinoma of Gland of Bartholin.**—J. Godart<sup>29</sup> records the removal of a carcinomatous Bartholinian gland from a patient 45 years old, who gave a history of slight pain in the labium majus for two years, with the presence of a certain amount of induration which did not increase in extent. The inguinal glands were not enlarged, and the growth was apparently confined to the gland of Bartholin.

**Simulated Malignant Tumor.**—De Sinéty<sup>23</sup> gives a brief description of an irregularly rounded tumor arising from the cervix near its junction with the right vaginal wall, its situation and general appearance simulating malignancy. Exam-

ination with a speculum, however, showed it to be a grayish-white, transparent mass of dilated ovula Nabothi, these tumors occurring most frequently upon the lips of the cervix or within the cervical canal.

**Chronic Metritis.**—P. Delbet<sup>22</sup> has found the injection of solutions of chloride of zinc, varying from twenty to forty per cent in strength, fully as efficacious as curettage. It does not aggravate existing lesions of the appendages as curettage often does, and it requires neither anesthesia nor immobilization of the patient. Many can rise immediately after the injection, or, at most, after a few hours. The writer has never observed atresia following the use of solutions of chloride in the above strength, although this occurs frequently when sticks of the chloride are employed.

**Tuberculosis of Ovaries.**—Lauwers<sup>29</sup> reports a case showing the following signs of pregnancy: amenorrhea for several months, vomiting, bluish coloration of the vulva, softening of the cervix, presence of colostrum in the breasts and of a tumor the size of a fetal head in the pelvis, and of a larger one, capable of giving ballottement, in the abdomen. Bimanual examination disclosed a small uterus; so laparotomy was performed, resulting in the removal of two large tuberculous ovaries.

**Ovarian Tumor complicating Pregnancy.**—W. Duncan<sup>4</sup> describes a case on which he operated for the above condition, removing an ovarian cyst containing 126 ounces of fluid. The patient made an uneventful recovery.

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## DISEASES OF CHILDREN.

**Broncho-pneumonia.**—In the course of some remarks on this subject M. S. Marcy<sup>1</sup> deprecates the custom of applying large, heavy, hot poultices to the chest, and the administration of large doses of squills, senega, and other nauseating expectorants for the purpose of hastening the suppurative stage. He believes it is not advantageous to stimulate the glands to secrete more mucus and thereby fill the bronchi with mucus, pus, and embryonic cells. This is practically depriving the patient of an abundance of pure air which he so much needs. The hot applications also tend to the same result by increasing

the flow of blood to the part and causing the inflammation to extend. The author advises the cautious application of ice bags to the affected side, and the ice cap and cold baths whenever the temperature is higher than 103°.

**Children's Teeth, Care of.**—James V. Mulford<sup>2</sup> emphasizes the importance of preservation of the temporary teeth, not only for the effect on the general health, but also that irregularity of the permanent teeth may not follow. The child should be taught to masticate the food thoroughly; the teeth should be brushed at least once a day with an antacid powder, giving the up-and-down as well as the crosswise motion; all cavities should be treated and filled, and, unless absolutely necessary, the temporary teeth should not be extracted until time for the corresponding permanent ones to appear.

**Cirrhosis of the Liver in a Child.**—Walter K. Hunter<sup>3</sup> and Charles Workman report a case in a child 6 years old, apparently due to receiving his share of whiskey when the parents were refreshing themselves. Microscopic examination of the liver showed a pronounced cirrhosis, mostly of the multilobular type, though in places also monolobular. The cirrhosis was most marked in the left lobe, where the glandular tissue was almost completely replaced by inflammatory new growths and vessels. Sections stained with thionin were seen to contain numerous groups of micro-organisms lying between the columns of the liver cells. These micro-organisms appeared to be short, thick rods, and sometimes—probably from irregular staining—diplococci. The appearances they presented corresponded closely to those of the bacillus coli communis. A similar organism was likewise to be seen in sections of the lungs and kidneys. No culture was taken from any other organs.

**Congenital Tuberculosis.**—H. McC. Johnson<sup>4</sup> presents a case of probable congenital tuberculosis in a child born of a mother with tuberculosis of the bladder. In view of the fact that the mother had marked tuberculosis of the bladder; that the placenta showed numerous pathologic changes on microscopic examination, such as we are accustomed to find in tuberculosis, and involving both the fetal and maternal sides; and that the child at birth exhibited decided emaciation and inanition, and after a short time presented at autopsy a decidedly advanced stage of tuberculosis, the author feels justified in considering that the disease was congenital.

**Diphtheria.**—In an article entitled "The Other Side of the Antitoxin Question," J. Edward Herman<sup>5</sup> takes issue with the advocates of the serum treatment. After a résumé of serum treatment in general, the author finds that the only serum for which to-day any decided claim is made is the antitoxin used for diphtheritic infection. If antitoxin fails so miserably in all other diseases, why should it succeed in diphtheria? There are many men all over the world who do not believe it does succeed. A pure culture of the Klebs-Löffler bacillus can undeniably be made, but it has not been possible to find the



bacillus in every case of diphtheria. On the other hand, the bacilli are often discovered in healthy throats. Hening does not even admit the etiological rôle of the Klebs-Löffler bacillus. This microbe is usually accompanied by other micro organisms, mostly staphylococci and streptococci. Fränkel and many others say there is rarely a pure Klebs-Löffler infection. Jacobi and Bowker believe there may be a streptococcal diphtheria, which is just as virulent as with the Klebs-Löffler bacillus. Roux and Yersin, and Brieger and Fränkel have shown that diphtheria bacilli differ in virulence in different cases. Now, as to the possibility of reproducing the disease in animals, it can be shown that many organisms from the mouth, cultivated in bouillon, will kill animals if injected into them. Raynaud found that the saliva of a man suffering from hydrophobia, if injected into rabbits, caused their death; but Pasteur showed the fatal result was not from hydrophobia, and that the microbes found in the blood and tissues of the rabbits were found also in the saliva of healthy persons. The claim that animal diphtheria is the same as occurs in man is denied by Virchow. Vissman insists that the lesions found in man and animals are not the same. Admitting that after what otherwise would be a fatal dose of toxin an animal can be rescued from death with mathematical certainty by the injection of a proper dose of antitoxin, still the assertion that this laboratory experiment demonstrates the ability of antitoxin to cure diphtheria in man is a claim the author is not willing to accept, for there is not sufficient analogy between a child sick with diphtheria and a guinea-pig into which simply some Klebs-Löffler toxin has been injected. It only proves, if anything, that an animal can be saved by antitoxin from the effect of the toxin of the same germ which has been used to produce the antitoxin. Even if these experiments were performed with children instead of animals, nothing more would be proved than in the case of the guinea-pigs, for toxin alone is not the same as the disease diphtheria—notwithstanding the assurance of the laboratory workers. When we know that many cases of diphtheria are complicated with other throat infections against which the Klebs-Löffler antitoxin serum has no effect, and the unestablished grounds on which the whole theory rests, it should no longer seem strange that many men will not use antitoxin.

The third and last paper of a series of articles is presented by Adolph Rupp,<sup>6</sup> and is entitled “Antitoxin, Diphtheria, and Statistics.” From statements in this and the preceding articles the author reaches the following conclusions concerning antitoxin as a commercial commodity and its immediate effects on the system afflicted with diphtheria: 1. It is a substance and a remedy of variable and irregular “unit” strength. 2. The same make of antitoxin may reap fulsome praise at one place, and at another place condemn itself with a larger mortality rate. 3. It is an organic substance which is easily rendered inutile by age and unfavorable temperatures (it sometimes

deteriorates in spite of good handling). 4. In comparing and weighing statistics which claim to prove the potent influence of antitoxin, we should not forget that antitoxin and diphtheria are not two conceptions that fit together like nut and screw. Antitoxin is fickle and uncertain as merchandise and as a remedy, as diphtheria is at different times and places a variable disease. In neither case are we dealing with fixed and rigid standards and certainties. Has antitoxin any marked influence on the pseudo-membranous deposition, inhibiting it or hastening its disappearance? The author has not been able to convince himself that it has. It seems to him that the membrane develops and retrogrades under antitoxin treatment very much as it does in cases not treated with the serum. It should not be forgotten that in different cases membranes show up differently, and that different epidemics develop varying peculiarities concerning the character of the membranes, the rapidity with which they form and disappear. Regarding laryngeal diphtheria, the author says that a good many, if not all, advocates lay special stress and emphasis on the great good that antitoxin accomplishes in laryngeal diphtheria. What antitoxin enthusiasts mean by laryngeal diphtheria and croup is not always clear to others. Some signify hoarseness, cough, and indications of stridor with the diagnosis of croup. Others call cases croupal when there are laryngeal spasms and obstructed laryngeal respiration, and cyanosis to some extent. Thus the conception of croup is an elastic one. Croupal symptoms are not always caused by pseudo-membranous deposits in the larynx. Edema above or below the vocal cords is a frequent cause. If antitoxin is the specific it is claimed to be, it should diminish the number of croup cases every time and everywhere. And diminishing the number of croup cases also implies the diminution of the relative number of croup operations—relative to croup cases and to cases of diphtheria all told. Also, epidemic influences should become scarcely noticeable in antitoxinized cases; at least, the great differences and variations noticed in non-antitoxinized statistics should become very much minimized in those antitoxinized. After an elaborate review of statistics, which is too exhaustive to be reproduced in an abstract, the author concludes that antitoxin has not diminished the relative number of croup cases that call for operation; nor has it diminished the mortality rates of operated cases, all facts, conditions, and disease-type differences considered. At the present time, at certain places, the general mortality rates are low, and consequently the operative mortalities for croup are also low. At other places, where the general diphtheria mortalities are high, so too are the operative mortalities high, whether antitoxin has been used or not. Allowances being made for the milder type of diphtheria that is prevalent—not everywhere, but at most places—it does not appear evident that the time during which the tracheal canula or O'Dwyer tube must remain in the

trachea or larynx, as the case may be, after croup operations, has been lessened by antitoxin therapy.

Johann v. Bokay<sup>1</sup> presents a report of intubations performed in the diphtheria ward of the Stefanie-Kinderspital. Budapest, which is translated by Edward Plummer. The results of this procedure in 291 unselected cases are given. Premature intubation was not done in a single case, and recovery from the milder forms of stenosis without operative interference was observed. On the other hand, it was considered that the operation was contraindicated when severe septic symptoms were already present or where the extension of the fibrinous exudate to the bronchioles could be taken for granted. Of the 291 cases, 100 (34 per cent) made recoveries. Laryngeal croup developed in 279 cases in the course of faucial diphtheria or without the latter, while in 12 cases secondary laryngeal croup appeared after measles or scarlet fever. Of the 279 cases belonging to the first group, laryngeal croup was observed in 212 cases, either accompanying faucial diphtheria or developing during its course, while in 67 cases the clinical picture of croup appeared without diphtheritic faucial symptoms. Of the 212 croup cases with faucial diphtheria, 65 (30.5 per cent) made recoveries. Secondary tracheotomy was performed eight times, with success only in one case. Of the 67 cases without faucial diphtheria, 32 (47.5 per cent) recovered. Secondary tracheotomy was done in 3 cases, with one recovery. Of the 12 croup cases secondary to measles and scarlet fever, 3 (25 per cent) recovered. Croup as the result of measles appeared 9 times (1 cure); as the result of scarlet fever 3 times (2 cures). The space of time during which the tube was retained varied from a quarter to three hundred and sixty hours. The author had less difficulty with tubes which had a straight instead of a bulging extremity. On the ground of the data which the author has cited, he is determined to perform intubation systematically in the future, and to permit primary tracheotomy only under two conditions: (1) where, besides the existing laryngo-stenosis, a high degree of pharyngo-stenosis is also present; (2) where, on account of severe edema of the aditus laryngis, no success can be expected from intubation.

**Diphtheria Bacillus, Rare Localization on Skin and Mucous Membrane.**—Müller<sup>2</sup> describes a case in a girl 10 years of age who complained of great pain on micturition, followed in two days by swelling and pain in the throat. There was a paronychia on the left thumb and an ulcer on the left ankle, the result of a fall several weeks before; the tonsils were swollen, with a membranous deposit on the right one; on the labia and the nates there were a number of small ulcers, while the vaginal mucous membrane was intensely reddened and covered with a pseudo-membrane in its upper portion. Cultures made from the pus of the paronychia and from the labial ulcers and vaginal membrane proved the presence of diphtheria bacilli, fully virulent to animals. In the throat were diphtheria

bacilli, staphylococci, and streptococci. No diphtheria bacilli were found in the wound on the foot. The general condition of the child was good, the temperature  $37.6^{\circ}\text{C}$ . on admission and afterward normal. An injection of 1,000 antitoxin units was followed in twenty-four hours by marked improvement, and in two days more only a mild reddening of the parts remained. No local treatment was given, the object being to note the action of the antitoxin. The case is of interest because of the primary localization (genitals) of the diphtheria, and because it demonstrates the fact that the diphtheria bacillus can produce pus when entirely alone, without the presence of pyogenic cocci, as in this paronychia.

**Ear Diseases coexistent with Adenoids of the Nasopharynx.**—William C. Braislin<sup>9</sup> gives an analysis of 110 cases, from which the following deductions may be made: 1. A great many of the ear diseases of childhood depend on adenoids of the pharynx. 2. When adenoids are present an investigation should always be made into the state of the ear. 3. Ear disease in some degree will almost invariably be found to accompany the adenoid growth. 4. Treatment of the ear disease should always be continued for a variable time after the removal of the adenoids. 5. Removal of the growth checks to a great extent the onward progress of the ear disease, but the operation does not eliminate the requirement for subsequent treatment of the ears in suppuration, tubal obstruction, or other well-established pathologic conditions. 6. The presence of the adenoids has a continuous degenerative influence on the ears; while under the influence of "colds," or attacks of acute contagious diseases of childhood, adenoids are prone to kindle active disorders.

**Epileptic Child and his Future.**—Hugh T. Patrick<sup>10</sup> writes that from an institutional standpoint the epileptic child is a problem; from the medical standpoint he is despair. Not one in twenty of these cases is permanently cured, and most of them gradually go from bad to worse until total disability, imbecility, or idiocy prepares the way for death. The colony treatment of epileptics is the best treatment, in fact the only one deserving the name. These patients are debarred the privileges of education, the pleasures of society, and from many of the ordinary vocations. The colony combines all the advantages of hospital care, home environment, social intercourse, industrial training, intellectual development, and moral control. After the plant is founded it is not necessarily expensive; in fact, it may become largely self-supporting.

**Intubation of the Larynx.**—Frank W. Wright,<sup>11</sup> in a general discussion of the subject, advises that one should not leave the patient for at least a half-hour, as dyspnea may return and reintubation be necessary. It is well to give an opiate to relieve the cough. It occasionally happens that after the original trouble for which the intubation was done has disappeared it is impossible to remove the tube from the larynx without dyspnea returning, necessitating the return of the



tube. Dwyer believed this to be due to traumatism. Paralysis of the vocal cords may possibly furnish an occasional exception to this rule. The traumatism may be due to a poorly fitting tube, or to one that is imperfect in its construction, or to injury to the tissues by an unskilled operator. Most of the cases of "retained tube" are due to the tube being too large, notwithstanding the size designed for the age has been used. If the pressure is great enough to seriously interfere with the circulation, even if it does not cause ulcer, there will be an edema of the surrounding tissue. The tube being withdrawn, the pressure is suddenly removed and the submucous tissue becomes infiltrated, and, being surrounded by cartilage, can swell in but one direction, thus obstructing respiration. Sometimes the head of the tube, by making undue pressure upon the parts upon which it rests, causes an abrasion, from which granulations spring, and as the tube is removed these drop down into the chink of the glottis and obstruct respiration. There may be complete destruction of the cricoid cartilage, and in this way, when the tube is removed, there will be a collapse of the walls. Nothing can be done to cure the last-mentioned condition, which is fortunately rare. When the lesion is in the subglottic region a cure may be effected by removing the pressure so as to allow the normal circulation to be restored. This is done by having the same sized head and retaining swell as the one first used, but the portion of the tube between the head and the swell should be one or two sizes smaller. When the retention is due to granulations the tube must be changed for one with the head built up so as to rise above and rest upon the granulating tissue, and by pressure assist in their destruction. It is by no means easy to determine which of these conditions exists, but it is unnecessary to differentiate, as one may have a tube constructed so as to embrace both the narrow body and built-up head, thus treating at the same time either or both the conditions. The sooner one recognizes that he has a case of retained tube and adopts the proper treatment, the shorter will the time be that the special tube must be worn.

**Lateral Curvature of the Spine and Pott's Disease.**—A. M. Phelps,<sup>13</sup> in the course of some remarks on this subject, states that notwithstanding that the plaster of Paris corset is heavy, cumbersome, and wears out, it is the best of all braces. The author invented the aluminum corset. Its life is fifteen to twenty years. It was first made in lateral halves, but, proving cumbersome, the duplex hinge was added, and now it can be put on and laced as the ordinary corset. In lateral curvature, with proper gymnastics, it will cure.

**Larynx, Contribution to the Anatomy of the Child's.**—Galatti's<sup>14</sup> investigations lead him to the following conclusions: A marked difference between the child's and the adult larynx is the fact that the hyoid bone lies upon the thyroid cartilage until the sixth year, when the ligamentum thyreo-hyoideum medium and laterals become developed; the cricoid cartilage is inclined

backward, markedly in the newly-born, and diminishes up to the fourth year, when it ceases; the entrance to the ventriculus Morgagni is very small compared with the space between the cricoid and thyroid cartilages, consequently the vocal cords and the glottis are absolutely and relatively shorter than in the adult. The appendix of the ventricle means, in the child, the continuation of the entire lateral sinus upward, and not only of the anterior portion as in adult life. This peculiarity disappears during the tenth year of life. The narrowest portion of the laryngeal-tracheal tube is at the level of the cricoid cartilage.

**Noma.**—Klautsch<sup>26</sup> reports the case of a boy of 2 years, delicate and poorly nourished, who developed noma of the right cheek, with perforation and necrosis of the upper and lower lips. Death occurred rather suddenly on the fourteenth day of the disease. The odor had been almost unbearable. The treatment employed was active stimulation, with removal of the necrosed tissue by means of the sharp spoon, followed by cauterization with silver nitrate. The disease began on the mucous membrane of the right cheek. While the specific bacterium of noma had not been demonstrated, the disease must be regarded as an infectious one.

**Paralysis in Children.**—Alexander C. Wiener<sup>18</sup> states that cerebral and spinal paralyses are often confounded, though the difference in symptoms of the diseases are striking. Lesions of any part of the upper neurons cause paralysis, spasticity of certain muscular groups, no muscular atrophy, no change in the electric reaction, exaggeration of deep reflexes. In lesions of the lower motor neurons there is paralysis, flaccidity of the muscles, reaction of degeneration, and loss of deep reflexes. In the cerebral spastic paralyses it is ridiculous to attempt to cure the affection with any mechanical contrivance. Tenotomy of the opposing muscles is demanded. It must be remembered always that spastic paralysis of apparently cerebral origin may sometimes be relieved by the removal of some peripheral reflex disturbance, as a phimosis or an occlusion of the prepuce of the clitoris. In the neuro-muscular degenerations following acute anterior poliomyelitis it is especially important to restore to the paretic extremities, so far as possible, the stimuli of locomotion and their normal associated movements, without the inhibition of insecure footing and strained tissues. In the construction of apparatus for the correction of deformities and for the protection of muscles from wasting in consequence of poliomyelitis anterior, the author endeavors to meet two physiologic requirements—(1) that a constant motor irritation be imparted to the inactive muscles by the action of the apparatus itself, which at the same time corrects the deformity; (2) increase of the arterial blood supply and stimulation of the lymph circulation.

**Paralysis following Cerebro-spinal Meningitis.**—W. N. Bullard<sup>16</sup> writes that in cases of this kind we find that pain on passive motion of the limbs persists to a degree rarely, if ever, found in anterior poliomyelitis. Such pain and tenderness

sometimes exist during the acute stage of anterior poliomyelitis for two or three days, but if it lasts much longer than a week the author is inclined to consider the case as one in which the diagnosis is to be very carefully examined. It is not uncommon, on the other hand, for great pain, on passive motion of the limbs or of certain joints, especially the ankles, to exist in cerebro-spinal meningitis one or more months after the acute stage of the disease has ceased. Tenderness on pressure over the muscles also persists much longer than in anterior poliomyelitis, where it rarely continues much beyond the acute stage, but it does not last as long as the pain on motion, active or passive. There is always a tendency to spastic contracture in the early stages of the paralysis of cerebro-spinal meningitis, and at times is very marked. More often, and particularly in the later stages, this tonic or spastic condition is not so evident, and shows itself only or principally in the extreme degree of flexion (extension) at the ankle joint, the foot often being in direct continuance of that of the leg. The knee jerk is, on the whole, less affected than in anterior poliomyelitis, though in either case it may be entirely abolished. In addition to these clinical signs we have the history of the initial attack to guide us.

**Parasitic Invasion of the Milk Ducts.**—Edgar D. Smith<sup>17</sup> reports 3 cases with results serious to the nursing children. In one case the infant had suffered from a difficult forceps operation; consequently there was an element of doubt as to the cause of death. In the other two cases the children presented the same collapsed appearance as in the fatal case, but they rallied on withdrawal of the mother's milk and regained their normal health in twenty-four hours after they were put on artificial food. The symptoms most marked, and those that should induce the attending physician to examine the mother's milk, are gradually increasing colic and intestinal irritation in a nursing child, where the cause for the same does not appear plain. If, after an interval of withdrawal of the mother's nursing, the symptoms become more marked on renewal of the same, the presence of this parasite is quite probable. The parasite resembles that of scabies, but is of smaller size. Uncleanliness does not seem to have favored the existence of the parasite, as it occurs among the well-to-do. A microscopical examination of the mother's milk presented milk globules, globules presenting the appearance of red blood corpuscles, and globules of about six times the diameter of the latter. The author noticed a frequent irregularity of the two larger globules and small cilia or hair-like projections from these irregular points, which hair-like extensions presented free movements. When allowed to stand some time or treated with alcohol, the medium-sized globules were found to contain one, and the largest two or more living parasites. The parasites were much smaller than the true fat globules. In specimens of this milk kept for any length of time the parasites are seen to grow larger.

**Pharyngitis and Tonsillitis in Infants.**—Henry Dwight Chapin<sup>18</sup> remarks that these two complaints are more common

in infants than has been supposed. The two common predisposing causes of primary throat inflammation in infants are disordered stomach and exposure to cold. In infants tonsillitis, as distinct from pharyngitis, is rare. The whole mucous membrane of the pharynx and tonsils is involved in the catarrhal inflammation. To successfully examine the throat of an infant the parts must be satisfactorily seen at the first examination. By means of a suitable tongue depressor, such as is shown by the author, the base of the epiglottis is firmly held at the first attempt and the fauces exposed to view. Pharyngitis and tonsillitis are a fruitful source not only of present discomfort but of post-nasal catarrh in children. Repeated attacks will surely cause enlargement of the adenoid tissue at the vault of the pharynx, as well as of the faucial tonsils.

**Rachitic Dwarf with Chronic Endocarditis simulating Infantile Myxedema.**—De Bary<sup>19</sup> reports a case occurring in a girl of 12 years, the child of cousins, who was born in normal labor and remained well until the appearance of rickets in her second year. She was only 84 centimetres high and weighed 15.6 kilogrammes. The abdomen was enormously distended and an umbilical hernia was present. The skin was not dry and perspiration was abundant. The child was not idiotic, but remembered experiences well and was amiable, very neat and loving. The temperature was normal; the urine contained albumin. Death occurred suddenly after some days of dyspnea and cardiac slowness. At the autopsy the heart was found to be large and the aortic, pulmonary, and mitral valves thickened, with hypertrophy of the right ventricle. The kidneys were congested; the thymus gland was present, not atrophied. The thyroid gland was normal. The child's condition then can be explained by the heart and kidney lesions combined with the presence of rickets. The backward mental state was due to early changes (ossification) of the cranial bones and consequent lack of brain development.

**Ringworm Fungi, the Ferments of.**—Leslie Roberts<sup>20</sup> presents some experimental notes on this subject. His observations lead him to conclude that the keratolytic function—that is, the power to digest keratin and corneous structures—was more extensively possessed by fungi than had previously been suspected. In the author's experiments old specimens were used, some of them 6 years old, from which all traces of the original nutrient medium had disappeared. It had previously been noted by Dr. Allan Macfadyen that the ringworm fungus produced a proteolytic enzyme capable of digesting gelatin. The author's observations show: 1. That the active agent in the liquefaction of the gelatin is contained in the mycelium itself, and not formed outside the body of the fungus by secondary changes in the soil. 2. That the active agent can retain its activity in a dormant state for six years, when the fungus has been preserved in a dry state. 3. That the activity of the agent is independent of the life of the trichophyton. What is this agent which can retain its functional activity and integrity over so long a period? Further observations show: 1. That



very minute quantities of the active agent can digest comparatively large quantities of gelatin. 2. That the activity of the agent is completely destroyed by an exposure of two minutes to a temperature of 185° F. 3. That the active agent is of the nature of enzyme or soluble ferment. What is the relation of this proteolytic ferment to the keratolytic ferment? There can be no doubt that they are perfectly distinct and different. The proteolytic ferment is soluble in pure water and may excite active fermentations, apart from the life of the fungus. On the other hand, the keratolytic or keratin-digesting agent is an organic ferment whose operations are purely vital, depending not only on the life of the organisms, but varying in intensity and in kind from one species to another. The author includes in the group of keratolytic fungi not only the trichophyta proper, but favus and some species of aspergillus. Another point of much interest is that the keratolytic action of trichophyton megalosporum in scalp ringworm is directed against the interior substance of the hair, leaving, when this is digested, a hollow shell of cuticle. Trichophyton microsporum, on the other hand, directs its keratolytic powers against the cuticle, digesting this first and subsequently attacking the interior cortical matter.

**Scarlatina, Treatment of.**—Knöspel<sup>21</sup> has studied 158 cases, of which 24 per cent died. The material comprised 24 mild, 116 moderately severe, and 18 very severe cases. Nephritis occurred 26 times. Angina necrotisans occurred in 46 cases, and the treatment employed was intratonsillar injections of carbolic acid. The method proved of value in checking the necrotic process, and apparently does not cause kidney complications. Hydrotherapy was employed in the form of cold sponging, cold compresses, cold packs, and baths of varying temperature, 30 cases being so treated. Nephritis occurred in only 5 of these, so that the use of cold water did not increase the predisposition to kidney complications. Nor has the author been able to verify the statement that milk diet prevents nephritis, which may occur in mild cases and as late as the thirty-fifth day of the disease. Two cases were observed which ran an afebrile course, and another case had no exanthem. One case of surgical scarlatina followed four days after an operation for double inguinal hernia in a boy of 4 years, who recovered.

**Scrofula, Statistical Contribution to Study of.**—Monti<sup>21</sup> bases his conclusions upon the observation of 8,128 cases of scrofula seen in the last ten years. In early infancy the disease is rare, but increases in frequency from the first to the fifth year of life, when one-half of all the cases occurred. From 5 to 9 the disease gradually diminishes, and is again slightly increased in frequency at puberty. Clinically three stages are to be distinguished, in the first of which there is incomplete metabolism in the tissues and its consequent symptoms (flabby muscles, poorly developed panniculus adiposus, anemia, cardiac weakness, moderate hypertrophic swelling of the lymph nodes, and disturbances of the respiratory and digestive tracts). The second stage is marked by inflammatory

lesions of the skin, mucous membranes, or periosteum, with but slight tendency to healing. The third stage is that in which tuberculosis of the lymph nodes, skin, bones, and joints occurs. Of the author's material, 9.69 per cent were observed during the first stage, 67.88 per cent during the second, and 32.43 per cent during the third. As it is impossible, during the first and second stages, to demonstrate the tubercle bacillus or its products, the difference between scrofula and tuberculosis must be admitted. Eighty-seven per cent of cases in the first stage are curable, 85 per cent of the second, and 60 per cent of the third. The mortality is 1 per cent during the first stage, 3 per cent during the second, and 8 per cent during the third. The cause of death during the first stage is tuberculosis of the internal organs, especially the lungs, or else intercurrent other infectious diseases. During the second stage death almost always results from tuberculosis of the lungs or intestines; and in the third stage tuberculous meningitis or amyloid degeneration of the internal viscera is the most frequent cause of death, while chronic sepsis proves fatal in a certain number of cases.

**Some Preventives.**—In the course of an extended article upon this subject A. Jacobi<sup>22</sup> remarks that cow's milk may be done to death by inconsiderate cooking, and that the latter is not rendered more wholesome by calling it sterilization. The belief that infants and children require much food is correct, but over-alimentation has its serious drawbacks, such as dilatation of the stomach, diarrheal diseases, rickets, adiposity, diseases of the skin, convulsions, biliary and renal colic, and myasthenia and myalgia depending upon the accumulation of phosphates and lactates in the muscular tissues. Over-alimentation may also lead to atrophy in different ways, so that the diagnostician of a case of atrophy has not to look for starvation in intestinal disease only. These infants suffer from pain and sleeplessness, furunculosis, phlegmons, and gangrenes. This is one of the many classes of disorders in which we have to turn to organic chemistry for solution of the problem. Cow's milk can never be made like woman's milk; mere dilutions do not change the abnormal character of cow's casein. Farinaeous decoctions protect the infant against this abnormal casein better than water. Plenty of water, however, in the food of infants prevents many forms of dyspepsia and secures normal function of the kidneys and of the liver. Infarctions of uric acid are frequent, and those of a hemorrhagic and pigmentous nature are not uncommon, and calcareous deposits are at least of occasional occurrence in the kidneys of the newly-born. Gravel and stone are frequent in infancy. All these foreign bodies lead to the disintegration of the endothelia, to hemorrhage, and to inflammation. Moreover, the rapid destruction of the red blood cells in the normal newly-born, and the transformation of hematin into hematinoidin, which is identical with bilirubin and biliverdin, lead to obstructions and thromboses. It is the large supply of water that should be given to every newly-born as a matter of course, while the milk supply is absent

or scanty, that will prevent many of these dangerous ailments of the first weeks of life. An exclusive cow's milk<sup>and</sup> diet is a mistake, no matter whether pasteurized or sterilized; it may cause one-sided alimentation, such as above described, and occasionally it produces, or aids in producing, scurvy. Cow's milk and farinacea require an ample supply of salt.

Rachitis has a tendency to get well—that is, under favorable circumstances the softened bones grow hard. Moderate curvatures disappear, or nearly so, after years, and the flabby muscles become strong and active. Nevertheless we should not let it alone, neglecting to employ air, proper food, cold water, phosphorus, iodide of iron, and cod-liver oil. In every case of rachitis there is danger of stunted growth, deformities of the extremities and trunk, and pressure by the chest wall on the chest; and secondary hypertrophy of the heart, subacute and chronic bronchial catarrh, with broncho-pneumonia and the possibility of tuberculosis; laryngismus stridulus, with possibly sudden death; hydrocephalus and imbecility or idiocy. These serious consequences of rachitis may be prevented by treatment.

Phosphorus may be utilized as a preventive in other directions. The structure of the blood vessels may be very defective, their walls being thin, fragile, and pervious. In such cases hemorrhage, small or copious, is a common symptom. The frequency of hemorrhages in the newly-born, leading, when in the cranial cavity, to asphyxia, convulsions, idiocy, or early death, is caused besides by the lack of coagulability of the infant's blood, by the thinness of the vessel walls whose tissue has not yet quite evolved from the embryonic state. This, or a similar condition, may continue for life. This hyperplastic state, however, is not of necessity general; it may be local. The early nose bleedings of some, though they have no heart disease, and the congenital tendency to aneurism in places where the elastic tissue, either from arrest of local development or by microbic destruction, is either scanty or absent (mostly at the origin of branches), prove the occasional occurrence of these circumscribed and local defects. This thinness, which predisposes to fatty degeneration of the intima and media, to sclerosis of the adventitia, to atheromatous endarteritis, and to the formation of aneurism at an early age, appears in a small number of cases, but the author is convinced that the administration of phosphorus—not phosphates of any kind—with its stimulant effect on the growth of connective tissue in general, has rendered him good service in habitual tendency to cutaneous, mucous, and internal hemorrhages. Hemophilia of a moderate degree and local, as it frequently occurs, appeared to improve under its use, and the children to be safer and better developed.

Nasal catarrh, with its hyperemia and soreness of the mucous surfaces, predisposes to and causes chronic hypertrophy, adenoid growths, tumefaction of submental and submaxillary lymph bodies, invasion of diphtheria and tuberculosis, and occasionally meningitis. That is so true that adenoid growths

of moderate size will get well without operation, solely by regular nasal irrigations. The latter alone will prevent and mostly heal the majority of the consequences mentioned. The hyperplastic, so-called scrofulous swellings of the neck in children, when not too old, will disappear when the original seat of the infection and irritation is attended to. The same should be said of the mouth. Hypertrophy of the tonsils, many forms of stomatitis, diphtheria, probably also most of the rare forms of tuberculosis and neoplasms of the pharynx, can and should be prevented. The author has always made it a rule to keep all the integuments clean. At least once a day a physiologic solution of salt water is poured through the nares of every infant or child over whom he has control. Large adenoids and tonsils should be resected.

A baby with hereditary syphilis is often kept under treatment for several months, gets well, and is discharged. The child grows up and develops symptoms of syphilis at about the age of puberty or about the twentieth or thirtieth year. These are the cases of so called "retarded syphilis." The illness of the baby born long years ago is easily forgotten. That is why, when syphilis is seen about the fifteenth or twentieth year, it is readily believed to be its first appearance, unless there is a history of the disease. Personally the author has seen but few such cases in which he could not trace this retarded syphilis back to the infant eruption, so that the assumption of hereditary syphilis in the adolescent or adult, not preceded by that of the infant, has become rather doubtful in his mind. The baby with hereditary syphilis should be kept under treatment and observation for years to prevent relapses and consequences.

**Spina Bifida, Operation.**—Haltain<sup>23</sup> operated on a baby 13 days old, removing the sac of the spina bifida and some strands of the cauda equina, but replacing as many as possible of these latter. The meninges were sutured and the sacral opening closed by a bone and periosteum flap. In spite of its poorly nourished condition the child bore the operation well, and the wound closed by primary union. Neither hydrocephalus nor any rectal symptoms developed. The defect in the sacrum was permanently closed.

**Syphilis, Disease of the Thymus in Hereditary.**—Schlesinger<sup>19</sup> reviews the literature and reports the case of a still-born syphilitic girl baby, whose thymus was apparently normal, but incision revealed the presence of a small cavity in the right tube, filled with a yellow, purulent fluid; similar though smaller cavities were then discovered throughout the organ. Microscopically these seeming abscesses were found to be necrotic areas originating in the concentric corpuscles, into which parenchyma cells had wandered; the process is not an inflammatory one. Other forms of syphilitic lesions in the thymus gland are induration and gummatous inflammation. A table is appended, showing the character of the lesion in the thymus gland in 24 cases of hereditary syphilis reported in medical literature.



**Tuberculosis in Children, Distribution of.**—In an editorial<sup>o</sup> it is noted that the common belief exists that tuberculosis in children usually attacks the intestinal tract, a result of the use of tuberculous milk as an article of food. Evidence, however, has been brought forth that the respiratory tract is more commonly the seat of the disease in children as in adults. Dr. W. P. Northrup has found the bronchial glands primarily affected in the larger number of cases. This opinion has been sustained by Carr and Guthrie. From statistics given it is seen that the abdominal glands and the peritoneum were involved 94 times, while the lungs, the pleura, and the thoracic glands were the seat of the disease 150 times. In 42 cases, 54.5 per cent, thoracic tuberculosis was the most prominent and apparently primary, while in 19 cases, 24.6 per cent, abdominal tuberculosis was the most prominent and apparently primary. Primary glandular involvement was found in 32 cases, 41.5 per cent—17 thoracic and 15 abdominal. Of the whole series of cases, death took place in 4 as a result of tabes mesenterica, in 30 from pulmonary tuberculosis, and in 41 from tuberculous meningitis. In 24 of the last, 58.5 per cent, the meningitis probably originated from the thorax, while in 9 the origin seemed abdominal. The preponderance of thoracic over abdominal tuberculosis is not believed to be due necessarily and solely to the direct entry of tubercle bacilli into the air passages, for the lungs may be involved in consequence of the entrance of the bacilli into the thoracic glands through the lymphatics of the pharynx, tonsils, and esophagus above and the lymphatics of the intestines and the abdominal glands below, and of the entrance of the bacilli through the thoracic duct into the pulmonary circulation by way of the right heart.

**Tuberculosis Inoculated by Circumcision.**—Neumann<sup>23</sup> describes a case which resulted from the sucking of the wound by the operator in order to stop the hemorrhage. Similar cases had occurred in the clientèle of the same man.

**Typhoid Fever, Frequency of, in Infancy.**—John Lovett Morse<sup>24</sup> and Hartley Wales Thayer conducted an investigation into the frequency of typhoid fever among infants, using Widal's serum reaction for determining whether these suspicions were well founded or not. The following conclusions seemed to a certain extent justified: 1. Typhoid fever, as has been commonly believed, is an unusual disease in infancy. 2. It is possible that women whose blood gives a positive Widal reaction, even though it be years after the occurrence of the disease, may in some way transmit this to their infants.

**Umbilical Hernia.**—Francis Huber<sup>25</sup> believes that we ought not to have any trouble in adapting a truss if we remember Nature's method of cure. The umbilical aperture, in the course of months or a year, grows small, more slit-like, and finally disappears as the abdominal muscles become more and more developed and stronger. During this period crying, straining, coughing, etc., should be prevented as much as possible. The author advises the use of a flat pad (cork, thin

board, large button, coin, etc.) to prevent the protrusion of the intestine into the umbilical sac. The pad should be larger than the aperture, and should be covered with sheet lint, gauze, or absorbent cotton, and kept in place by strips of adhesive plaster. Additional support is afforded to the abdominal muscles by the application of the ordinary binder sufficiently broad to take in the entire abdomen.

**Urethritis in Male Children.**—In an article on this subject Isaac A. Abt<sup>7</sup> states that the disease may be specific (gonorrheal) or non-specific. Baginsky is of opinion that the various etiological factors in connection with the non-specific variety are: 1. An excessive quantity of urates. 2. Traumatism. 3. Extension of a balanitis or a balano-posthitis to the urethra. 4. Masturbation. Rona contends that urethritis is not due to masturbation, and he rejects pinworms, phimosis, eczema, and scabies as etiological factors. Koplik believes that non-specific urethritis may be due to inflammation by the meatus and fossa navicularis, and that most of the cases are caused by infection due to some innocent manipulation by mother or nurse. In the case alluded to Koplik was not able to find gonococci. In specific urethritis the symptoms are similar to those noted in the adult. In private practice, as well as in hospital and dispensary practice, it is in most cases difficult to elicit accurately the mode of infection, though it cannot be doubted that most cases are due to actual sexual contact, a lesser number to manipulation of the parts with infected hands, linens, and the like. The recorded cases show that the majority of children acquire the disease from servants or from little girls suffering from vulvo-vaginitis. Complications occur the same as in adults. Stricture and cystitis have been observed, and epididymitis has been seen in rare instances. Gonorrheal arthritis is not reported as occurring after urethritis in male children, though it occurs frequently enough as a complication of vulvo-vaginitis and purulent ophthalmia. It is an interesting observation that the arthritis which occurs in children is never of so severe a type as that which occurs in adults. There is usually little or no fever, and ankylosis is unknown in the child, though there may be a little temporary stiffness. Lymphangitis of the penis, balanitis, and balano-posthitis occur often. Rectal gonorrhea has not been observed.

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## ORIGINAL COMMUNICATIONS.

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### TUBERCULAR MENINGITIS IN INFANTS.<sup>1</sup>

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BY

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THE object in presenting this subject to the Society is to elicit discussion on the differential diagnosis. Tubercular meningitis is a tuberculous inflammation of the pia mater of the brain, sometimes involving that of the cord. It is also known as acute hydrocephalus, or "water on the brain," on account of the effusion of fluid into the ventricles; and because of the location of the tubercles the term basilar is frequently employed. It may be said to be a local manifestation of tuberculosis at the base of the brain, which is characterized by marked cerebral symptoms due to the deposits of tubercles in the pia mater. It is usually associated with general tuberculosis, but there may be no tubercular deposits discovered outside of the cranial cavity. It occurs most commonly in early life and is sometimes met with during infancy. While in older children it may be found associated with tuberculosis of bones, joints, or lymph nodules, in infancy the

<sup>1</sup>Read before the Washington Obstetrical and Gynecological Society, December 2, 1898.

tubercles are usually confined to the brain. The fact that the disease in infants runs a very acute course and is invariably fatal impels me to limit my remarks to this age. Many irregularities in its symptoms are presented, typical cases being rarely seen in the first two years of life, hence the difficulty of early recognition. In a large number of cases there is a tubercular history in the family, hereditary in the sense that the infant possesses a predisposition to the development of the tubercle bacillus. In many cases this bacillus attacks an individual when absolutely no trace of inheritance is discoverable. It cannot be doubted that the tubercle bacillus is transported from some part of the body to the brain through the blood or lymph. In very many instances the seat of the original tubercle cannot be determined, though the exciting cause must have gained admission to the body months before the appearance of the characteristic manifestations. The evidences of exposure to infection being absent, the structures involved are often apparently the primary seat of disease. When tubercular deposits are recognized in the bronchial glands, lymph nodules, bones, or other structures of the body, no surprise is occasioned when there are evidences of involvement of the structure at the base of the brain. Infection may come from without through various articles of food, such as the breast milk from a tuberculous mother or wet-nurse, or milk from a tuberculous cow, or perhaps the infant may be infected by inhaling the tubercle.

The onset of tubercular meningitis in infants is so insidious that one is excusable for not suspecting the real nature of the disease. The child is peevish, capricious, easily frightened, dull, irritable, will not play, and wishes to be held. If left to itself it is perfectly satisfied, but when disturbed it exhibits great irritability and nausea or vomiting. The child is sleepy, but sleep is frequently disturbed. Soon vomiting of a projectile character is noticed and cannot be traced to any indiscretion of diet or management; coated tongue, anorexia, constipation, fever, and perhaps an occasional outcry, shrill in character and known as the hydrocephalic cry. Following these are the symptoms of still greater irritation of the brain, such as slight stiffening of the neck, very slow pulse, pain on motion, unequal pupils which react slowly to light, diminished reflex of both the conjunctivæ. During this time the child sleeps, except when aroused for the purpose of nourishing it, when it will take its food slowly. In some instances the *tache cérébrale* is present, but this cannot be regarded as diagnostic. Finally, when



the exudation is sufficient to produce compression, the last stage is ushered in by convulsions, which may recur at brief intervals, or cease only to reappear just before death. During this entire period coma is well marked. There is that peculiar stare of the eye, with dilated pupils which respond very slowly, if at all, to light. The fever, which has previously been high, may now remit. The infant usually lies upon its side with the head slightly retracted, the limbs drawn up, and the fingers closed over the thumb. The respiration is of the Cheyne-Stokes variety.

Upon macroscopical examination are found very small tubercles in the meninges, especially in the meshes of the pia mater along the course of the vessels at the base of the brain. The irritation produced by the presence of these growths causes greater or less transudation into the lateral ventricles of the brain. In some cases there is also a fibrino-purulent exudation between the pia mater and the convolutions at the base, particularly in the fissures of Sylvius, and it may cover the whole convexity of the brain. While in childhood the lesions found appear to be sufficient to account for the symptoms, this is rarely so in the infant, in which the symptoms are out of proportion to the cerebral lesions; and yet the most careful examination has failed to disclose tubercular deposits or caseous nodules outside of the cranial cavity. This would seem to warrant the hypothesis that in infancy, at least, owing to some peculiarity of environment, the tubercles in the brain generate a virulent toxin, for in no other way can the rapidly fatal influence be accounted for, inasmuch as they do not seem to be capable of such destructive activity when located, even in much larger numbers, in any other structure of the body. Death can hardly be attributed to the pressure occasioned by the effusion, which is not always sufficient to distend the ventricles, because in other intracranial diseases the child may live for months, although the effusion may be so great as to rupture the walls of the ventricles, obliterate the convolutions, distend the fontanelles, and separate all the sutures.

The symptoms may be divided into those of the first and the second stage—that of irritation and compression. During the first the infant is peevish, fretful, restless, and will not play with its toys. The temperature is usually  $101^{\circ}$  F. and is seldom higher, except just before death. The pulse is quick, constipation is common, and the urine is scanty. The second stage is ushered in by an exaggeration of the symptoms of

the first, to which is added projectile vomiting which cannot be attributed to gastric disturbance. It sleeps, except when aroused to be fed, rolls its head from side to side, its pulse is quicker and the temperature about the same. With the increase of the exudation convulsions may set in, after which the stupor is constant, the child being roused with difficulty to take its food. Nystagmus, strabismus, and ptosis are usually present. The pupils are dilated and do not react to light. In some, paralysis of a group of muscles or complete hemiplegia may be present. The pulse increases in frequency, the respiration becomes very slow, assuming the Cheyne-Stokes variety, and the temperature may drop to normal. These symptoms rapidly intensify, and within a few days a state of profound coma, with profound convulsions and inability to swallow food, supervenes.

*Diagnosis.*—From the foregoing symptoms it would seem reasonable to suppose that one could very easily make a diagnosis of tubercular meningitis in the infant; and, indeed, this would be true if we could hold the diagnosis in abeyance until the typical manifestations made their appearance. While prominent symptoms mark the stage of irritation in the older child, such is not the case in the infant. In the latter the symptoms during the stage of irritation, while giving evidence of the departure from the normal condition, are usually not sufficiently characteristic to lead the most careful physician even to suspect the presence of so grave a disease. It is true that the mother may have noticed the change in disposition, the peculiar expression of the eye, the desire for sleep, and some other symptoms which convince her that her child is not well, but they may not make a deep impression even upon her mind. The stage of compression usually occurs before the gravity of the cerebral symptoms is recognized by the physician, but, owing to the incompleteness of the early clinical picture, he is apt to be misled into supposing that the convulsions, stupor, and coma are due to some extracranial disorder; hence it may be for several days that the physician is in doubt as to the differential diagnosis. The duration of the disease in the infant is usually about a week, but it may last a month.

*Prognosis.*—The prognosis depends upon the accuracy of the diagnosis. If we are sure that the case is one of tubercular meningitis, we may as well in the beginning prepare the parents for the fatal termination. Judging from my own observations, I would question the diagnosis of any case of tubercular menin-

gitis with a favorable termination. Since this disease is regarded as uniformly fatal, palliative treatment is about all that can be expected.

In order to illustrate the difficulty in diagnosis in the early stages of tubercular meningitis, I give the details of four cases which I have recently seen in consultation. At the time I saw the cases there could be no question as to the serious nature of the cerebral symptoms, the only question being as to their cause. In each case I was sure of the diagnosis of tubercular meningitis, expressed an unfavorable opinion, and was invariably supported by the speedy fatal termination.

CASE I.—The following case was seen in consultation with Dr. A. C. Merriam. The child, about 20 months old, was apparently well, but was suddenly taken ill with vomiting and a convulsion while playing in a nearby park. The condition became so much worse that in a few days I was asked to see her in consultation. At this visit I learned that a month or more before this sudden illness she had complained of pain in the head, would lay her head on her mother's lap, and at times was irritable, though these attacks did not attract particular attention. After the convulsion, coma and slight convulsions were almost constantly present. At the time of my visit the child was moribund, but from the history prior to Dr. Merriam's visit, the onset and the clinical picture subsequent thereto, there was no doubt in my mind that the case was one of tubercular meningitis. The child died the following day.

CASE II.—In November, 1897, I was called in consultation to see a child which presented the following symptoms:

She was 14 months old, bright for her age, walked and talked, and had been in perfect health up to one week before my visit. At this time she was taken with fever and vomiting, which were attributed to some indiscretion of diet. Under the care of her physician she improved so much that he pronounced her well. On the following day, however, the child's mother sent for him, owing to the sleepy condition into which she had fallen. At his visit he found that she was vomiting without apparent cause, for the stools showed that her digestion was normal. She slept a great deal, and when awakened gave no evidence of mental disturbance. The temperature was normal, pulse slightly accelerated, and respiration somewhat slower than normal. The following day, more to please the parents than anything else, he requested me to see the infant in consultation. At my visit I found the child apparently well

nourished, though somewhat anemic, which was not surprising since she lived in a malarious district. Her pulse, respiration, and temperature were normal. She had taken sufficient food, and I concluded that she was simply recovering from an attack of some acute disorder. Two days later, however, I was again summoned to the house and found the child in a condition of sopor; pupils widely dilated, not reacting to light; head rolling from side to side; slight opisthotonos; slight strabismus; occasional nystagmus; slow deglutition and subnormal temperature. The pulse and respiration were slow. I now realized the nature and gravity of the disease and gave an unfavorable prognosis. The next morning the child was more profoundly comatose; all of the symptoms were exaggerated, the Cheyne-Stokes respiration now being present; convulsions began at noon and did not remit until her death later in the day.

CASE III.—A few days after seeing the foregoing case I was called to see another by Dr. W. S. Bowen. This infant, also a female, age 13 months, was in the last stages of tubercular meningitis. I obtained a verbal history from Dr. Bowen, which is about as follows: Early in the summer he had attended the child for an attack of enterocolitis, from which she recovered and was taken North by her parents. The child showed evidences of another attack of gastro-enteric disorder in September, and was treated by the family physician at the home of the parents in Connecticut. She improved and was brought to the city, and was soon after visited by Dr. Bowen. She again gave evidence of gastro-enteric disturbances, which Dr. Bowen attributed to the modification of milk which she was taking. His efforts directed to the improvement of the digestion failed. Fever, not exceeding 101° F. in the rectum, persisted, drowsiness came on, she took less and less food daily, and, her condition becoming so much worse, I was requested to see her. She now presented evidences of exudation, such as stupor; dilated pupils reacting slowly to light; difficult deglutition, although she would take the food if aroused and fed with a spoon. Her eyeballs rolled up; there was slight nystagmus; pulse and respiration were slow. At my first visit I expressed the opinion, basing it upon the history as detailed, that the child had tubercular meningitis. Her condition grew worse day after day, and she died in about a week, after having severe convulsions.

CASE IV.—The last case is one of the most interesting and illustrates better than the others the importance of and the



difficulty in making an early diagnosis. The history of the case is as follows, given by the attending physician:

“About October 8, 1898, Mrs. B. called attention to the fact that her baby girl, age 1 year, did not play as brightly as she had done previously. A few days afterward I examined the child very carefully and found bronchitis. The mother thought the child had caught cold. I prescribed for it and it seemed to improve. About the 15th the mother noticed that it was fretful and peevish, suffered pain on standing, wanted to be held in the arms, and preferred to remain quiet. I supposed the baby had some muscular soreness, as I saw nothing to account for the condition in any other way. The temperature up to this time had never been over 102° F., which it was the day I thought she had a cold.”

I was called in consultation with Drs. Nash and Cook on October 22, 1898. The above history was given me, with the additional facts that the evening before the child was put on the floor and tried to play with its toys, but did not seem able to do so. At his morning visit Dr. Nash discovered that the child was having a convulsion. He returned in the middle of the day and found that there were still convulsive movements and that the child was in a condition of coma. At my visit, at 6 P.M., the child presented the following symptoms: Profound coma, complete muscular relaxation, superficial reflexes slightly diminished; pupils widely dilated, not responding to light; lids partly closed, eyeballs moving slowly from side to side; the respiration slow, pulse slow; child took its nourishment, but swallowed slowly; occasional muscular twitchings; rectal temperature 104°. The question of the cause of the compression was the one thing that occupied our minds. From the previous history and the case as it presented itself I was sure that we had a tubercular meningitis of the gravest form, and expressed the opinion that the child would live but a few days. The following day there was a slight diminution in the gravity of the symptoms, which offered all of us an opportunity to hold out some hope to the parents; but this improvement was only apparent, as the condition grew rapidly worse, and the child died on the fourth day after my first visit.

The principal point of interest in this case is as to the early diagnosis. Looking at the case after the onset of the most serious symptoms, one might be inclined to believe that the early diagnosis could have been made; but when we remember

that this infant did not exhibit any marked symptoms, and that the parents only noticed the peevishness and the peculiar changed expression, we realize the difficulty of accurately determining its nature until the onset of the symptoms of intracranial compression.

1 DUPONT CIRCLE.

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## VAGINAL ABLATION IN PELVIC INFLAMMATIONS.<sup>1</sup>

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BY

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New York.

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(With five illustrations.)

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ANY operative procedure directed to the remedy of conditions which heretofore have been treated with marked success by another method must occupy at first a defensive position; for none of us is willing to abandon methods which have served us and our patients well, for newer and untried operations. This is assuredly so when we are asked to put aside an operation which is almost technically perfect, and one in which our national pride, as well as our convictions as surgeons, are so thoroughly involved.

To the American surgeon much of the perfection in abdominal section is due, and it is scarcely possible that any marked improvement will be brought out in the technique of that differentiation of it which we term *pelvic*. Much, very much of this almost faultless work through the abdomen is to be placed to the credit of you gentlemen of Philadelphia. It is, therefore, reasonable to suppose that you will, with spirit and determination, defend the abdominal operation against the newcomer. But, inasmuch as you have ever shown yourselves eager to grasp innovations which appeal to your reason, even though old and tried procedures had to be cast aside, I expect at your hands not only argument, but careful analysis of what I have to offer you.

In the first of this paper I must declare my faith in laparotomy in a certain class of cases. The vaginal operation does not entirely supplant the abdominal. The vaginal has, to be

<sup>1</sup>Read before the Section on Gynecology, College of Physicians of Philadelphia, March 16, 1899.

sure, limited the field of the abdominal route, but, at the same time, it has substantiated the claims of the latter in a well-defined class of cases. It appears to me that a detailed description of the steps of the vaginal operation will best draw out its advantages.

*Definition.*—Vaginal extirpation of the ovaries, tubes, and uterus is accomplished by the formation of four pedicles. These pedicles are secured by forceps and slough; therefore they must be treated extraperitoneally. At once it will occur to you that there is a similarity between this operation and the old suprapubic hysterectomy with the extraperitoneal treatment of the stump. Such is the case, but with this difference, that in the old operation the collection of the discharge was against gravity, whereas in the vaginal operation drainage is



FIG. 1.—Genital sclerosis. Many curettages and infections.

facilitated by the posture and anatomy of the body. When I tell you that the very essence of the vaginal operation is the extraperitoneal treatment in the vagina of the stumps, you will see the importance of each step as I describe it, and can explain the failures where the operation has been imperfectly performed.

**THE OPERATION.** *The Incisions.*—The vaginal mucosa is incised at the posterior fold, over the point where the peritoneum is reflected from the uterus. Laterally this incision reaches the level of the sides of the cervix. The anterior incision should be made, not in the dense cervical tissue, but in the loose reticular tissue between the uterus and the bladder. Both the anterior and posterior incisions are crescentic in shape. Their ends do not meet, but between them a strip of mucous membrane, an eighth of an inch in width, is left. The value of this

will be appreciated at a later step. I find that in most cases I can bore into the Douglas pouch with my finger, and I always either do this, or at least dissect the tissues up as high as I can, generally using my fingers. In separating the bladder from the uterus I find assistance from the intrauterine traction forceps, which fix the uterus, whether I effect the dissection by means of my finger or by toothed forceps and scissors. In this, the first stage of the operation, I seek no more than the liberation of the uterus from its normal attachments, anteriorly and posteriorly. This being accomplished, I introduce one finger along the middle line of the posterior surface of the uterus as high as I can reach. In doing this I liberate attached organs

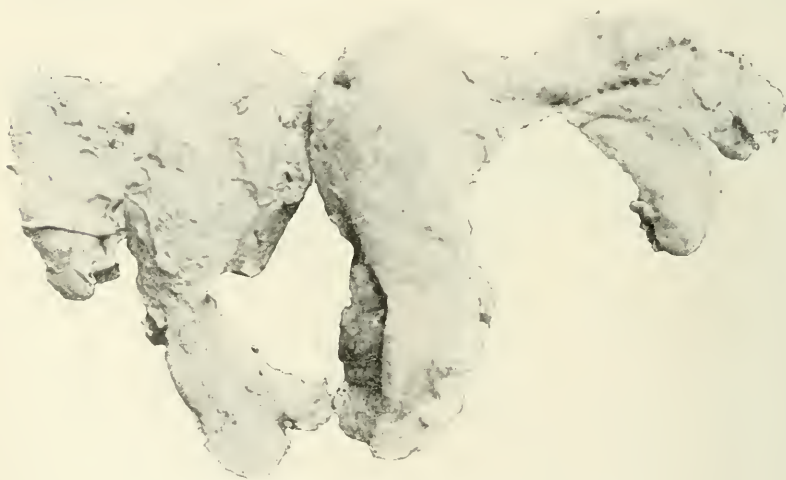


FIG. 2.—Uterus and double gonorrheal pyosalpinx.

only so far as will enable me to make this track. I studiously avoid any attempt at freeing the adnexa at this stage. So far there has been no hemostasis. The bleeding which occurs is slight and comes from small anastomotic branches only.

*Second Stage.*—I now withdraw my traction forceps and seize each lateral angle of the cervix with bullet forceps. The closed, blunt scissors are inserted into the uterus to determine the direction of its canal. I then split the anterior wall of the uterus as high up as I can see. An assistant holds up the bladder with a narrow retractor, and I seize each side of my cut in the uterus with Péan's toothed traction forceps. These are twisted outward, and as this is done more of the anterior wall of the uterus rolls from beneath the bladder.



This is also split in the middle line, and other traction forceps are applied upon each side of the cut in the uterus as high as its angle. I repeat this progressive median section until the cornua uteri appear. When this occurs I withdraw the perineal retractor and pass the grooved director up behind the uterus in the track my finger has made for it. The assistant not only depresses the perineum with this, but he also draws the uterus forward, so that the groove in the director may be both felt and seen above the fundus. Into this groove I insert the bistoury and accurately split the uterus along the centre of its posterior wall. The organ is now in halves. Still no attempt at hemostasis has been made.



FIG. 3.—Bilateral pyosalpinx with diffuse pelvic suppuration. Uterus measured seven inches.

It is well to consider what has been accomplished thus far. After entering the posterior cul-de-sac, were I to attempt to liberate the adnexa, it would be most difficult because of the presence of the uterus and because of the *bilateral fixity*. Further, any very general liberation of the adnexa, intestines, or omentum would only permit them to fall between my grooved director and the uterus, and thus render them liable to injury when I split the posterior surface of the organ.

After splitting the uterus the bilateral fixity is abolished and each half and its adnexa are to be dealt with separately, free from any attachment to the other. I try to fix the reader's

attention upon this important step in the operation by the expression: "I divide my difficulties by splitting the uterus."

A pair of traction forceps is fastened into the fundus of each segment, and into each half of the cervix is locked a bullet forceps. The right half of the uterus is shoved up into the pelvis and the left is drawn down. This latter, being free from all fixity upon the right, will swing from beneath the bladder, so that in most cases its cavity will look directly out and the entire half of the uterus be outside the body, the cervical portion being over the perineum, and the fundal beneath the pubes. The anterior and posterior retractors are withdrawn, and no instruments pass into the vagina except the two traction forceps



FIG. 4.—Pyosalpinx, uterus, and ovarian cyst.

which have hold of the right half of the uterus. While the left segment is held outside the body, the left hand is introduced into the pelvis up to the thumb, or for a distance of nearly five inches. This will enable the index finger to reach the pelvic brim in all cases.

Bearing in mind that whereas my hand is to one side of the uterus, it is also upon the posterior face of the left broad ligament, I begin the separation of the adhesions. As manual dexterity controls the ease with which this can be accomplished in all suprapubic work, so also it determines the facility with which the adherent ovary and tube may be liberated through the vagina. If I were to compare the two methods, I would say,

that it is easier to free through the vagina all organs which are adherent below the pelvic brim. The attachment of omentum and intestines to the adnexa can be severed either by the fingers or by scissors. In the latter act it will but be necessary to hold up the bladder with a retractor. The adnexa will be found most closely applied to the posterior surface of the broad ligament and to the lateral pelvic wall. Inasmuch as the adventitious union is between the peritoneal surfaces, the separation of the agglutinated tissues proceeds along the usual "plane of cleavage."

If the dissecting fingers evacuate a pus pocket, I am secure in the consciousness that its contents will escape below and will not enter the higher abdominal cavity. If such an event occurs,



FIG. 5.—Ectopic pregnancy, uterus and pyosalpinx.

and many pus tubes are exceeding friable, I withdraw my hand, cleanse it, and scrub the pelvis dry. Very rarely in these pus cases will it be found that the intestines are sufficiently free to prolapse into the vagina during the operation; but in such an event they can be kept in place by a gauze pad. I seldom see a knuckle of small gut during my operations. In fact, not often is the small intestine adherent to either the uterus or tubes, but all false attachments of the coils of small intestine are interintestinal. In my vaginal work I am well beneath all such complications and they are avoided.

When I have liberated the left adnexa I return them and their half of the uterus into the pelvis, the uterus being under control by traction forceps. I now introduce the right hand into the pelvis and liberate the right adnexa. This is accom-

plished in exactly the same way as upon the left side, only I am careful to determine whether the appendix vermiformis be attached to the adnexa. If it is I introduce anterior and posterior retractors and inspect it. If the appendix be merely adherent I carefully liberate it without doing damage to it. By no means are all adherent appendices diseased.

After I free the right adnexa I draw them from beneath the bladder and grasp the upper border of the broad ligament with forceps. This is applied from above downward, so that the strength of the forceps is upon the ovarian artery and the point of the forceps down. The broad ligament is now cut to the point of the forceps, and another forceps is applied in the same way to the uterine artery. The right half of the uterus and right adnexa are removed. The two forceps are dropped and the left adnexa and half of the uterus similarly treated. When liberating the adherent adnexa I appreciate the importance of leaving a narrow strip of vaginal mucous membrane between my anterior and posterior incisions, for, did I not do so, I might possibly rip up the cervix from the pelvic floor and thus tear the uterine artery by the forcible introduction of the hand into the pelvis. I wish here to emphasize one feature of this method of operating—namely, the absence of all attempts at hemostasis until the two sets of adnexa are entirely free. If I proceeded differently, in certain cases of small vagina, I would find the forceps very much in my way, and in rotten tissues there would be danger of tearing them off the pedicles they hold.

I may also call your attention to the method of applying all the forceps from above downward, which insures their being, together with the stumps they hold, in the vaginal vault. When the forceps are dropped those on the ovarian arteries fold the top of the broad ligament over the pairs on the uterines, and in this way the latter are prevented from touching the bladder. As I apply the forceps upon each side the halved uterus is drawn to the opposite side, in this way increasing the distance between the cervix and the ureter.

I now wipe the pelvis dry and introduce a gauze pad. The table is tilted into the Trendelenburg position, and a careful inspection of the pelvis is made for bleeding from aberrant vessels. Upon each side a strip of iodoform gauze is introduced between the forceps and the vagina. Each set of forceps is held aside by long, angular retractors and the vagina is filled with gauze. The dressing is made to project above the



points of the forceps at all points and is snugly applied. Usually I introduce ten or a dozen pieces such as I here show, each a yard long and four inches wide. The patient is lowered into the horizontal position and a self-retaining catheter introduced. I dilate the sphincter ani, for the bruising of the perineum causes spasm if the sphincter remains active, and I wish the bowel open for the early passage of gases and feces.

Such, gentlemen, is the operation as I perform it. It is not always as routine as this, but difficulties are easily overcome. If I have a large uterus to deal with I cut pieces from each side of my median section as I proceed, thus diminishing the bilateral diameter. If a retroperitoneal mass, such as a fibroid or blood accumulation, lifts the uterus up against the symphysis so that the anterior median section can proceed but a short distance, I split the posterior wall through the cervix and remove the displacing mass, thus allowing the uterus to drop down. Occasionally I have met with cystic accumulations so large and so high up that I could not liberate them with the fingers even after splitting the uterus. In such cases I do not hesitate to remove the uterus and to carefully dissect out the adnexa or tumors with forceps and scissors. In eighteen hours the bowels are moved by salines and enema. In forty-eight hours the forceps are taken off, and six hours later I wash out the bladder and take out the catheter. The first dressing is made in from seven to twelve days and is preferably done in Sims' position. Other details I need not go into.

The features of the operation, as I perform it, are the liberation of all the adherent organs before any hemostasis is attempted, and the application of the pelvic Mikulicz dressing. The first is essential to the formation of the pedicles, so that they may be strictly extraperitoneal, while the latter insures the retention of these pedicles in their proper position while isolation of the field of operation and its sterilization are accomplished by the dressing.

A certain mortality from this operation is found abroad to be due to late infection occurring after the forceps are removed. This is entirely due to a disregard of the possibilities of the pelvic Mikulicz. In the first place, this dressing drains and sterilizes the pelvic pouch. I may remind you that in this operation no pins are used to fasten the stumps outside the peritoneal sac, as is done in the old extraperitoneal suprapubic hysterectomy, but this is accomplished in vaginal ablation by the forceps for two days only. When these are removed the

ovarian stumps, not being held, have a tendency to snap back into the peritoneal pouch, and I am convinced that a part of the European late mortality is due to this. The application of the pelvic Mikulicz prevents this. As the first essential to a successful vaginal ablation was found to be the formation of the stumps so that they would be extraperitoneal, so the second embraces the proper application of dressings which will maintain these stumps outside the pelvis while the union between the bladder and rectum is forming.

Another attribute of the method of forming the stumps, not less important than the one mentioned, is that by it the forceps cannot touch any part of the pelvic contents, and hence fistulæ are not seen to follow the method advocated. Apart from the sentimental objection to an abdominal scar which is held by some women, there are several real objections to making a section of the abdomen in these pus cases. In removing pus foci through an abdominal incision they must be dragged through a cut which it is expected must close by primary union. Even to-day occasionally an abdominal wound or stitch hole suppurates. The best method of closing the abdomen each of us possesses, but none of us can persuade all the rest to try it; and I believe I am well within the truth when I say that a certain percentage of our abdominal operations result in hernia—may I say three per cent?

All these questions are not brought up for consideration in vaginal ablation. The two ovarian stumps and the two uterine are brought to the vaginal vault. As the scar of healing forms it will be seen that at each lateral angle there is a dimple where the scar is firmly held up by the broad ligaments. In other words, the bases of the broad ligaments have become part of the vaginal scar. Furthermore, the vaginal scar lies under the protection of the promontory of the sacrum in all positions of the body in which any intra abdominal pressure is brought to bear upon the pelvic floor. Hernia through the vaginal vault and shortening of the vagina are not results of the vaginal ablation under discussion. My friend Dr. Baldy has particularly appreciated this point, for he has devised an operation for prolapse which is effective because it is dependent upon the fixation of the broad ligaments to the vaginal vault.

We have now to consider the vaginal operation in its bearing upon certain lesions and complications which are present in cases of pelvic suppuration. I will take first the adhesions which are found to exist between coils of intestine. These are particularly diffuse where the lesions are due to infection after

unclean instrumentation upon the uterus, abortion or labor. It was necessary to pass through this mass of adherent, inter-adherent organs in order to reach the pelvis, and here we found our first argument against laparotomy. These adhesions were of two kinds, the recent and the old. The first were easily broken along the point of union between the lymph masses, while the latter were severed between fine ligatures. The presence of the old organized adhesions was evidence that that particular place was sterile, but the presence of recent lymph was proof positive that the line of cleavage was a battle line. Hence, apart from the waste of time and introduction of ligature material incident to severing old adhesions, these latter were not factors in the result. But far different when the lymph effusion was recent. The operation being done for some pus focus in the pelvis, this has in its removal been dragged between the adherent intestines we have just separated. Possibly reinfection of these lymph planes occurs, or handling the intestines may have denuded them of their endothelial covering and *these* spots become infected. As a result we had form after our abdominal operation adhesions between the coils of small intestine which were more general and firm than those first existing. You have also, by lifting these infected spots into the higher cavity, conduced to infection there. Pelvic adhesions produce little disturbance of intestinal function. Abdominal adhesions disturb the action of the bowels, because they form between coils of small gut. The greater the normal range of mobility in an organ the greater the disturbance in its function when this mobility is limited. In enucleating pus foci through the abdomen more general interintestinal adhesions are produced than existed before the operation. No entry should ever be made into a recent effusion of lymph unless provision be made against reinfection. In vaginal ablation these interintestinal adhesions are not disturbed. If any of you state that it is advisable to sever these, and that such an operation is not followed by the re-formation of the adhesions, I must admit that I have no technique which warrants my taking your position. Certain it is that whenever I have performed an abdominal section after another operator has made one, I commonly find the omentum or the intestines adherent to the abdominal scar and a greater or less degree of union between the various intestinal coils.

The adhesions which exist between the omentum and bowels and the organs to be removed must be severed in both the abdominal and the vaginal operations. But in the abdominal

you lift these lymph-covered and infected spots from the pelvis into the higher abdomen, in order that you may reach the pelvic organs which you seek; you convert at least a portion of the pelvic filth into an abdominal infection, and at the same time make no provision for its removal or sterilization. In the cases not due to streptococcus infection this is not a matter of great importance as bearing upon risk to life, but I am convinced that it always conduces to the formation of suprapelvic adhesions. But in cases of infection due to virulent streptococcus the implantation of this pelvic nastiness upon the general abdominal peritoneum subjects the patient to some risk, even though you scatter the germs by flushing the abdomen or remove them by drainage.

In the vaginal operation the uterus and adnexa are removed and the surfaces of union between them and the intestines are left where found, turned down toward the point of readiest escape for their discharges. Also, in the vaginal operation, there is no handling of the intestines above the pelvic brim and no exposure of the general cavity to contamination by either hands, swabs, or air. The vaginal operation is essentially an operation upon the pelvic contents only.

Not the least attractive feature of the vaginal ablation with forceps is the absence of all problems involved in the use of ligature and suture materials. No less than seven times have I removed through the vagina infected ligatures which were introduced through the abdomen. And whereas the introduction of the kangaroo tendon ligature—composed, as it is, of a homogeneous material which is not easily infected—has done away with many of the objections to ligature, yet the passage of ligatures through the tissues of these infected cases must always be considered disadvantageous. In a certain number of cases of pelvic suppuration we find openings between the rectum and a pus focus. In doing vaginal ablation these are not sutured, no matter how large, but are found to close if the sphincter ani is forcibly dilated and a tube introduced into the bowel.

Having thus debated the relative merits of the vaginal and abdominal operations in certain cases, it but remains for me to state in which cases I believe each operation occupies a position to the exclusion of the other.

I would always consider that the vaginal is the operation of election in all cases of pelvic suppuration where the vermiform appendix did not require removal and where there was no fistulous opening between a coil of small gut and a pus sac.



In considering the advisability of removing the vermiform, I have to record but one case in which after vaginal ablation the appendix became so diseased as to require removal. This patient I saved by a midnight laparotomy.

The question is naturally suggested, Can you tell through the vagina whether the appendix should be removed or the small-gut fistula sutured? For if you cannot foresee the complications your position is untenable. It is time enough to remove the appendix when it produces symptoms requiring it.

A fistula existing between the small gut and a pus focus I have seen but once in my life. If I should have such a condition existing when I performed a vaginal operation I could detect it, and I would finish my vaginal operation and close the fistula through the abdomen. You may meet this statement by the objection that I subject my patient to two operations. I have to answer that so do you whenever you remove the uterus and adnexa through the abdomen, for you always do an abdominal section and an ablation of pelvic organs. Once more in my life I may be compelled to open the belly for a small-gut fistula. If I do not, I may say that I always do a vaginal ablation without the abdominal section. Much of the success following the vaginal ablation is due to the minor degree of trauma inflicted and the incomplete narcosis under which it is done. The operation also consumes less time than is required for abdominal section.

There is a class of cases, however, in which I never attempt a vaginal operation. A few times I have had to deal with uteri and adnexa which were infected after either a full-term delivery or an abortion after the third month. Such uteri extend above the pelvic brim and form very extensive adhesions to the appendix and intestines. In most of such cases I perform abdominal section. My reasons for doing this are as follows: In the first place, the infection having passed from the pelvis and become distinctly abdominal, we must view the case in the light of its abdominal lesions. Furthermore, essentials to my operation are the ability to make at least some degree of down traction upon the uterus and to split the uterus. These puerperal uteri are so friable that the least traction will cause the forceps to tear through, and the interlacing vessels between their walls are so developed that splitting the uterus produces a dangerous degree of bleeding; and as these uteri are too large to remove *en masse* through the vagina, they are to be taken out through the abdomen.

In the six years during which I have been doing vaginal ab-

lation I have performed but five suprapubic hysterectomies for pus. The history of these cases—the local lesions as well as the state of very general septicemia which they show—will indicate the proper line of procedure.

If I may be pardoned a prophecy I will state as my belief that, after you have carefully analyzed this vaginal operation and awarded it its proper place, you will agree with me that for pelvic lesions it should always be done, reserving for laparotomy those cases which have ceased to be pelvic. And if you will bear with such an expression from one who feels, and, I think, naturally, some enthusiasm about this work, I may state my position regarding all pus foci in the pelvis. It is that we must be either wholly conservative or absolutely radical, whether the lesions be bilateral or unilateral. It is no trick of dexterity or of fortune which has given me these results.

Until I had properly placed this operation, until I classed it as one embodying the extraperitoneal treatment of four stumps, I was in much doubt. What before I did not understand is now clear to me, and in hands such as yours, which do such wonders in the abdomen, I look for still further improvements.

I am particularly pleased to address you to-night, because I am able to report that by this method of operating I have, without mortality, completed my first series of 100 operations for pelvic inflammatory lesions. Roughly classified, the operations were for:

Old tubal, ovarian, and peritoneal lesions, which I term genital sclerosis—cases where the tubes are occluded, distorted, and adherent after many attacks of pelvic peritonitis.....	16 times.
Pyosalpinx or ovarian abscess, the lesions being in all cases bilateral .....	54 “
Diffuse suppuration, the pus being no longer confined in the sacs of its origin, but free in the peritoneal cavity and extending between adherent lymph planes.....	9 “
Pelvic bands, sinuses, or other lesions due to laparotomy.....	8 “
Ectopic gestation with pus foci, the gestation sacs sometimes ruptured, occasionally unruptured..	13 “

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100 cases.

## THE SURGICAL TREATMENT OF PELVIC INFLAMMATORY LESIONS BY ABDOMINAL SECTION.<sup>1</sup>

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BY

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AN estimation of the value of any given surgical procedure is to a great extent relative, and in any event can only be properly estimated from practical experience. Such is pre-eminently the case with the surgical treatment of pelvic inflammations conducted by either the vaginal or abdominal route. Much has been written on the relative merits of these two methods, and each has its advocates. The question of which operation shall be performed in every case hardly enters into dispute, because there are some cases which are pre-eminently proper for the vaginal operation, so much so as to preclude the consideration of any other—such, for instance, as acute pelvic abscess in which the pus is free in the pelvis. One might well include in this class those rare cases of pyosalpinx and ovarian abscesses of enormous size in which there is oftentimes a doubt as to just where the pus is confined and in which there is a bulging into the vagina. Other than these all cases of pelvic inflammatory lesions are open to consideration and it behooves each surgeon to settle upon a routine operation—not an operation from which he cannot or will not deviate in cases of peculiar circumstances, but an *operation of choice*, to which procedure, as a matter of fact, there will be but few exceptions.

The writer has met this question from a purely clinical standpoint and has allowed cold, hard facts to settle the matter for him. It has happened that personal experience has been the main factor in deciding upon abdominal section as the operation of choice in all cases of pelvic inflammatory lesions, with the exception of those already noted. It is not meant that the experience of other operators has had no consideration, but merely that they have been relegated to a secondary place on account of the great variety of uncertainties incident to statistics. If asserted facts presented by other

<sup>1</sup> Read before the Section on Gynecology of the College of Physicians of Philadelphia, March 16, 1899.

surgeons agree with our own experience, our position is the more amply fortified. If, on the other hand, experiences are met with by others just the contrary to what we are repeatedly seeing, we are not unnaturally apt to discard all else and accept our own as the true status. For instance, when a surgeon protests that after abdominal section for these lesions he has much and profound shock, and after vaginal section on the same class of cases, carried as far as was his abdominal manipulation, he has no shock whatever or practically none, then I am forced to believe, as the only way to reconcile the difference between his experience and my own in abdominal section, that he is not as good an abdominal as he is a vaginal surgeon; that he has not yet risen to the plane of the highest class of abdominal surgeons. It is certainly true that what any one man or group of men have accomplished, and repeatedly accomplish, in any given branch of surgery, is the correct status of that particular procedure; if another man or group of men cannot rise to the established standard, the fault surely rests with the individual.

Shock, in the sense that it causes any undue delay in the patient's recovery from the influence of the anesthetic, that it necessitates my seeing my patient from the time of the operation until twenty-four or forty-eight hours have elapsed, that drugs are necessitated as restoratives, that the patient is unable perfectly to recognize and converse with her attendants, is, in this class of cases upon whom I have performed an abdominal section, almost, if not wholly, unknown to me. It is a matter of constant surprise to see this question of shock continually harped upon oftentimes by men who as a matter of fact know better. What they say concerning shock in the vaginal operation is in my experience true, but exactly the same thing is true of the abdominal section; there is not enough shock in either of them, if well done, worth mentioning.

As far as the abdominal section is concerned, I base my assertions in this paper on a series of seventy-three cases. The matron of the Gyneccean Hospital was instructed to take the hospital books for the past four years and submit to me a list of all abdominal sections performed by me for pelvic inflammatory lesions during that period. From the list submitted all mild cases have been eliminated; such cases, for instance, as only necessitated the breaking up of adhesions, hysterorrhaphy, the removal of one uterine appendage (with three exceptions which will be noted later), conservative procedures on one or



both ovaries, prolapsed ovaries, etc. In not a single case eliminated did death result from the operation. I mention this merely to impress the fact that eliminations have been made only with the object, if possible, of obtaining a true idea of what can be accomplished in the worst forms of this disease by abdominal section. Concerning these statistics, let it be understood that they merely represent the past four years' work in the more extreme forms of pelvic inflammatory lesions in one of the institutions with which I am officially connected; that by retaining the milder cases referred to the number could easily be greatly increased and made to show much better relative results. I wish it to be distinctly understood, however, so that there may be no further misunderstanding upon this subject—misunderstandings such as are continually made, and oftentimes, I think, purposely, in discussions on the relative merits of the vaginal and abdominal operations—that the cases upon which the remarks in this paper are based are of the worse class that pass through my hands; some of them acute, some chronic, some even of that class in which I would have performed vaginal incision and drainage had I known as much about the cases before as after the operation. Amongst the many complications in this series of cases I need only mention resection of the bowels, transplantation of the torn ureter into the bladder, bowel fistulæ requiring resection and repair, diseased and lacerated bowels and bladder requiring suturing, involvement of vermiform appendix in diseased masses, to emphasize the fact that these are to be classed as the *bad* cases.

I repeat, in but one of these cases was shock an element of one moment's worry. This case was one of most extensive pelvic disease with the most dense of adhesions, such involvement of the vermiform appendix as required its removal, and with such a rotten condition of the small intestine and mesentery as to demand resection. I operated upon the patient before twenty or more members of the American Medical Association, which society happened to be holding its meeting in Philadelphia at the time. The shock was considerable, but she pulled out of it safely and made an excellent surgical recovery.

Hernia is one of the great offensive weapons held over abdominal section for pelvic inflammatory diseases by its opponents.

I have carefully and conscientiously for the past few years followed up my patients wherever and whenever possible, in order to determine whether or not they develop hernia. I know

of several such accidents, but in each and every case they are in patients on whom the old through-and-through suture alone was used. I know of none and have the notes of none which have occurred since I have been using my present method of closure of the abdominal wound. Many of these seventy-three patients are to-day within easy reach, and many more of them have been seen or heard from within the past year; in not a single one of them is there a hernia at the seat of the incision.

The scar on the woman's abdomen is, we are repeatedly told, held as a matter of serious complaint by women. This may be true in France; it may even be true in New York, where vanity and other things reign supreme; but here in Philadelphia and Pennsylvania, New Jersey and Delaware included, our women seem to be of a different quality. Possibly it is that with their Quaker and German blood they are more phlegmatic (shall we say less giddy ?) and look at these matters differently from their sisters in the wicked metropolis. But, however that may be, I desire to assure you most seriously in all my wide experience I have never, in the case of my own patients nor in those of any other abdominal surgeon, who have passed through my hands, heard one woman even mention the subject. I assume, therefore, not unfairly I think, that there must be some mistake in the assertion of these men—at least that is the charitable way to look at the matter.

Another disadvantage, we are told, of the abdominal section is that the patients are unable to get out of bed within ten days or two weeks, as they are after the vaginal operation. This objection to the abdominal section has always seemed to me to have been answered by the old Irishwoman who, after kissing the cow, remarked it was simply a question of taste. It is simply a question of judgment. It may be good judgment to allow a woman who has been as extremely ill as these women are, and who requires an extensive major surgical operation, to rise from her bed and return home to her usual routine of life at the end of ten days, but it is a decision with which I beg to differ *in toto*. This class of cases we have under discussion are for the most part cases of long-standing and serious disease; the women are broken-down, worn-out patients, and so much so that not infrequently it requires months or years for them to regain their former state of health even after being relieved of the cause. I take it that a month in bed, good feeding, nursing, and all that goes with such after-treatment is worth more than can be told to their future

health. There is not one of these patients in a dozen whom I could not get up and send home within two weeks after the abdominal section; in fact, how many of us do not daily find it difficult to keep them in bed? A long experience with this class of cases in particular has taught me to resist their desires and to make three weeks the shortest time to which I will consent; I prefer four weeks. I follow the same practice with my vaginal operations, and believe that my ultimate and comparative results fully uphold my judgment.

These matters are all more or less important, but it will be seen that in the light of the truth not an atom of real objection to the abdominal section is advanced in them. The greatest of all elements, and the one which must after all condemn or uphold abdominal section in these diseases, is the mortality and the results of the operation.

As to the mortality, a glance at the accompanying tables will show seventy-three of the worst phases of the disease. In the list there are two deaths noted—the balance all left the hospital at the end of the appointed time in comparatively satisfactory condition.

Of the two deaths, one did not die on account of the operation. Her death occurred between three and four weeks afterward. Her convalescence was a perfect one for over two weeks. (Had I been sending my patients home within two weeks she would have died there and not in the hospital; she would have, and could have, left the hospital apparently perfectly well.) She suddenly developed an attack of bowel obstruction, and after a week or ten days' illness died of this condition. I offer no excuse for the death, but append a letter from her doctor, who conducted a postmortem examination upon her body after it had been sent home. It will be seen that she not only did not die from her operation, but from a condition which was overlooked at the time, which condition could not have been remedied had a more careful overhauling revealed it. It was only a question of time as to when she died from it; unfortunately she died in our hands.

PHOENIXVILLE, December 1, 1897.

DEAR BALDY:—This morning, in the presence of Dr. Butt and Miss Harper, the nurse, I held a postmortem examination on Mrs. Murray. Of course your diagnosis was correct. The condition was curious. The pelvic floor was perfect, with no inflammatory deposits—everything was as slick and clean as possible; but the obstruction began at the ileo-cecal valve and extended some eight inches back along the small intestine.

Two knuckles of bowel were adherent to the abdominal incision at its upper end very firmly. The walls of about two-thirds of the small intestine were infiltrated with a hard deposit very much like old atheromatous arteries. At the beginning of the ileum (its upper end) were many old bands of adhesions extending in all directions, looking almost like a web formation, there were so many; and I presume one of these flimsy bands ruptured when she experienced the sensation of something snapping. The post. settled to our satisfaction two things—first, that the operation had nothing to do with the death directly; and, second, a secondary operation would not have been of any service, but would have only hastened death. The family were perfectly satisfied and realize that all was done that could be done. It was unfortunate, but could not be helped.

Sincerely yours,

J. G. SHOEMAKER.

The other death was one of septic peritonitis and was directly attributable to the operation.

One death in 73 operations, a mortality of less than 1.4 per cent! Can the vaginal operation produce any better result? Is there any major operation in the whole range of surgery that can be done with less danger to the patient? When the opponents of the abdominal operation for this class of disease, in making comparisons to the detriment of the procedure, talk of 25 per cent, 15 per cent, or even 10 per cent mortality as being the natural one for the operation, do they think they are dealing fairly with the student or physician or patient who comes within the sphere of their influence? or is it fair to the science of surgery? Personally I think the surgeon who cannot in this particular class of cases bring his mortality down to five per cent has no right to expect that his results will be taken into consideration when the status of this operation is considered.

Comparatively with the vaginal operation several more points remain to be considered. Many of these seventy-three cases were impossible from the vaginal standpoint—namely, the cases of bowel resection, the bowel fistulæ, the bowel and bladder injuries (necessary ones, if the operation was to be completed at all), the ureteral transplantation, the involvement of the vermiform appendix—fully twenty cases or more in all. By the abdominal operation every case was possible and was completed, whatever the difficulties, whatever the complications. No disease was left for future complications, no injuries to hollow viscera (with one exception) to give rise



to a fistula: no second incision to repair damage done during operation.

Nor was drainage required in but a small per cent of the cases—eight cases out of seventy-three (about 11 per cent) of the class, of all others, which calls most frequently for drainage. Consider what that means: no chance for subsequent infection, no fistulæ, no hernia, no ligatures to come away after long suppuration, no tedious and troublesome and expensive dressings of wounds and drainage tubes or tracks, primary healing of all wounds, and no bad-smelling patients, as occur after the vaginal operation.

In conclusion, the following is the status of the abdominal section for pelvic inflammatory lesions, as is demonstrated by my own quoted work and by that of many other surgeons:

1. The operation is the safest in this particular class of cases of almost any other to which abdominal section is applied.

2. Shock rarely enters into the case as a serious sequel: never more so than in the vaginal operation.

3. Drainage is the exception: it is the rule in vaginal work.

4. Hernia occurs in not more than one per cent of cases operated upon.

5. Women are not prone to complain of the abdominal scar.

6. The patient could arise from her bed and return to her home at as early a date as after the vaginal operation, were it considered advisable for her to do so.

7. A completed operation is always possible by the abdominal route: in a large per cent of the bad cases it is impossible by the vaginal route.

8. The technique of the abdominal operation is much more easy than that by the vagina.

9. There is less danger of damage to the hollow viscera by the abdominal route: if such injury does occur there is less danger of infection from such injury and the damage is more readily repaired. As a matter of fact such injuries are impossible of repair by the vaginal route.

10. The mortality of the abdominal operation is all that could be desired, and no other major operation shows a better record.

All cases in the tables are arbitrarily divided into salpingitis and pyosalpinx, simply to indicate the presence or absence of pus.

Name.	Physician.	Diagnosis.	Operation.	Result.	Drainage	Shock.	Hernia.	Remarks.
R. D....	Hospital.....	Double pyosalpinx.	Both sides....	R.	Yes.	No.	No.	Died third day of septic peritonitis. Pulse bad before operation; never became better.
L. K....	"	"	"	D.	No.	"	"	
B. B....	L. E. Taubel....	"	Hysterectomy	R.	"	"	"	Under torn and transplanted into bladder. Acute puerperal case. Apparently dying woman.
A. C....	Hospital.....	"	"	R.	"	"	"	
L. W....	Dr. Parks.....	"	"	R.	"	"	"	
F. Z....	Dr. Weeks.....	"	Both sides....	R.	Yes.	"	"	
K. B....	Dr. Baldy.....	"	Hysterectomy	R.	No.	"	"	
M. E....	Dr. Hess.....	"	"	R.	"	"	"	
M. W....	Dr. Haines.....	"	"	R.	"	"	"	
E. J....	Self.....	"	"	R.	"	"	"	
C. H....	H.....	"	"	R.	"	"	"	
L. W....	Dr. Bloom.....	"	Both sides....	R.	"	"	"	
R. R....	Dr. Love.....	"	Hysterectomy	R.	"	"	"	
M. W....	Self.....	"	Both sides....	R.	"	"	"	
R. S....	Self.....	"	Hysterectomy	R.	"	"	"	
C. C....	Dr. Shultz.....	"	"	R.	Yes.	"	"	
L. S....	Dr. Bradford...	"	"	R.	No.	"	"	
F. J....	Dr. Potter.....	"	"	R.	"	"	"	
A. L....	H.....	"	"	R.	"	"	"	
S. H....	Dr. Maurer.....	"	"	R.	"	"	"	
B. C....	H.....	"	"	R.	"	"	"	
A. W....	H.....	"	"	R.	"	"	"	
R. L....	Dr. Murphy.....	"	"	R.	"	"	"	
A. L....	Dr. Burns.....	"	"	R.	"	"	"	
E. W....	Dr. Thompson..	"	"	R.	Yes.	"	"	
M. G....	Dr. Birney....	"	"	R.	No.	"	"	
M. McG.	Dr. Fritchey...	"	"	R.	"	"	"	
M. S....	Dr. Hall.....	"	"	R.	"	"	"	
M. L....	Self.....	"	"	R.	"	"	"	
A. B....	Dr. Bertholet..	"	"	R.	"	"	"	
A. M....	Dr. Kinnier.....	"	"	R.	"	"	"	
L. T....	Dr. Fritz.....	"	"	R.	"	"	"	
E. P....	Dr. Thompson..	"	"	R.	"	"	"	
L. W....	Dr. Gloninger..	"	"	R.	"	"	"	
H. W....	H.....	"	"	R.	"	"	"	
B. L....	H.....	"	"	R.	"	"	"	
B. Z....	Self.....	"	"	R.	"	"	"	
C. Z....	Self.....	"	"	R.	"	"	"	
		(tubercular).	Hysteror- rhaphy.	R.	"	"	"	
		Double pyosalpinx	Hysterectomy	R.	"	"	"	



## CLINICAL DATA RELATING TO CANCER OF THE UTERUS.

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BYANDREW F. CURRIER, M.D.,  
New York.

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THERE is no form of disease which has been more patiently and thoroughly studied by pathologist and clinician than cancer, and none which up to the present time has more completely baffled human effort to eradicate it. This seems the more strange since Virchow, Cohnheim, Waldeyer, and others long since declared that in its initial condition it was a local disease. Such a statement may, however, be misleading, for it is prone to attack weak, poorly resisting tissues, and may have more than one focus of development. These foci may have coalesced and reached the dangerous or incurable limit before the alarm has been sounded and the offending material removed. Does not this teach us that if we are to expect success in the treatment of any form of cancer, whether in horny tissues like the skin or the softer tissues of the mamma, rectum, stomach, or uterus, we must educate our patients to direct our attention to it in its incipency and make wide and deep removal at that period?

We need not occupy ourselves at this time with a lengthy consideration as to the nature of cancer. While it often presents connective-tissue elements which may be misleading in the investigation of a given specimen, it is essentially a disease of the epithelium, whether that epithelium be of the flat squamous variety upon the surface of the skin or mucous membrane, or the cylindrical epithelium lining a follicle, a gland, or a duct. In epithelial tissue it begins, and in such tissue we must study its structure and follow it in its invasion and destruction of other tissues which it attacks.

While it has no unvarying formation, it commonly presents an alveolar framework of connective tissue, a net-like structure, the holes or cavities of which are more or less filled with epithelial cells or fragments of cells. As these cells are reproduced or proliferated new tissues are invaded and infiltrated; these in turn are destroyed and break down, and hemorrhage and offensive discharge are apparent.



As the blood and lymph vessels are entered by the accumulating cells the latter are carried from the original seat of the disease to other parts of the body, and thus we have the secondary deposits which make the complete removal of the disease at its primary location only an ineffectual attempt.

It thus appears that there are no fixed bounds or limits to this disease, unlike the benign growths which have capsules and definite boundaries; on the contrary, it advances and destroys and advances again, infecting the tissues which it meets in its progress and others to which it is carried by the blood and lymph streams, until the patient succumbs from exhaustion and malnutrition. In the concise words of Waldeyer, it may be defined as an atypical epithelial new growth.

Such is the pathological picture of cancer, and an apology may be necessary for recalling so much as is elementary in the foregoing remarks.

In cancer of the uterus we have, as is well known, one of the most frequent localizations of the disease. It has been stated that in cancer of the uterus and of the mammæ more than half of all cases and all localizations of the disease are to be found. Common experience will sustain the statement that cancer in women includes the large majority of all cases of malignant disorder. It therefore demands unusual attention, and uterine disturbance which is in the slightest degree suspicious from the presence of erosion of epithelium or from bloody discharge should at once furnish a signal for careful investigation.

With reference to what may be termed the initial lesion of cancer of the uterus, there are several well-recognized varieties with uniform characteristics in so far as their mode of origin is concerned.

1. The most common variety is that which begins in the cylindrical epithelium lining the follicles with which the mucous membrane of the vaginal portion of the cervix is studded. It is a hard, warty growth, progresses slowly and painlessly, the different foci coalescing after a time, breaking down with more or less hemorrhage, and then extending to the vaginal mucous membrane, the pelvic cellular tissue, and the mucous membrane of the cervical canal. This variety is commonly known as the cauliflower growth, cancrroid, papilloma, etc. As it progresses slowly, it is the most amenable of any of the varieties to radical treatment if removed early and thoroughly.

2. The second variety attacks primarily the flat epithelium upon the vaginal portion of the cervix and the contiguous

mucous membrane of the vagina. It is less hard than the first variety, extends somewhat more rapidly, and gradually works its way into the deeper structures.

3. The third variety first attacks the epithelium of the mucous membrane which lines the cervical canal. It is softer than the other two varieties, develops rapidly, ulcerating and breaking down the cervical tissue with profuse accompanying hemorrhage and offensive discharge from the uterus; it extends into the broad ligaments, and produces systemic infection more rapidly than the other forms. It is not often discovered until it has produced damage which is beyond the reach of cure. Its appearance is often that of a great hole or cavern, with walls which bleed and break down at the slightest touch.

4. The fourth variety is the least common of any and attacks the epithelial covering of the mucous membrane of the body of the uterus. The uterus becomes infiltrated and enlarged, its peritoneal surface is often hard and irregular, and extension takes place downward to the cervix and outward into the broad ligaments.

Of course it is not always possible to differentiate these several varieties except in the early stages of the disease.

Enough has already been said, for a paper of this character, of the manner in which the disease extends; and when we realize the richness of the uterus in lymphatics and blood vessels, it becomes perfectly easy to understand why the disease soon passes beyond the point when complete removal of all infecting elements becomes an impossible task.

One of the most unfortunate facts, paradoxical as this statement may appear, in the development of uterine cancer is the complete absence of pain until a degree of extension into the tissues beyond the uterus has been reached in which complete removal is practically impossible. Indeed, a woman may go from the beginning to the end with scarcely an admonition from this source that a fatal disease is present.

Another misleading fact is that there may be nothing in the facial appearance of the patient to indicate severe disease. Cachexia, pallor, and wax-like countenance are not universal, at least not until a late period, and I have seen rosy cheeks and the blush of health upon the countenance coexist with a hopeless condition of the uterus and surrounding tissues.

The first symptom which excites the patient's attention, as a rule, is hemorrhage. This symptom presents itself in a variety of ways. It may be a slight stain at irregular intervals, or a

profuse gush, with or without clots, or an unusually free flow at the menstrual period. An abundant hemorrhage at the time of the menopause or subsequently is always an alarming symptom and should call for rigid investigation. The hemorrhage may follow an exertion or a strain, severe fatigue or a profound emotion, or it may have no appreciable exciting cause whatever.

A cause which I have observed in many cases is coitus. The bleeding in such cases is usually profuse and excites attention which might not be aroused under other circumstances. Unfortunately the disease is usually far advanced when it is announced in this manner.

A symptom which is less likely than hemorrhage to arouse attention is a fluid discharge from the uterus and vagina. It may or may not be of an offensive character, and is unlikely, at first at least, to cause the patient to seek professional advice. Thus the very paucity of the symptoms in this dreadful disease prevents the physician, in the great majority of cases, from interference when interference might be radical and life-saving.

As the disease progresses repeated attacks of peritonitis follow one another, and the intestines and omentum become infiltrated and fused together into a firm and unyielding mass. The nutrition becomes visibly impaired; the discharge of blood and broken-down tissues becomes almost continuous; finally the ulcerative process invades the rectum and vagina, and thenceforward to the end of life feces and urine are flowing from the vaginal opening almost constantly. Sooner or later, if the disease follows its accustomed destructive course, the kidneys become seriously involved. This fact was brought out many years ago by Lancereaux, and I have verified it many times by autopsy. The ureters become enlarged and infiltrated, the kidneys themselves sacculated and filled with pus, and death often comes with the symptoms of uremic coma.

The treatment may be regarded as radical and palliative, and any mode of treatment which leaves out of consideration the use of surgical measures is, in my judgment, worse than useless. I do not deny the value of careful diet, exercise, sunlight, and agreeable surroundings, nor the efficacy of anodynes and tonics, but I have failed to observe that they alone had any particular effect in staying the progress of the disease.

Surgery alone holds out any promise of a cure, and only in those cases in which its aid is invoked at an early period.

When Freund proposed the complete removal of the cancerous uterus through an abdominal incision, about the year 1876, it was thought that the solution of a very troublesome question was in sight. His propositions were put to the practical test by Schröder, Billroth, Czerny, Leopold, Fritsch, and many other surgeons, chiefly German, and a large number of cases were operated upon, usually with unsatisfactory results. Then came the operation of removal of the uterus through the vagina, chiefly through the advocacy of Schröder, the immediate results being certainly better than those which were obtained by the Freund method.

Carl Braun, and others following his lead, from about the year 1870 amputated the cancerous cervix in many cases with the electro-cautery wire loop, and John Byrne, of Brooklyn, has been doing a similar operation as long or longer with the electro-cautery knife.

Marion Sims' contribution to the subject consisted in the removal of the diseased tissues as completely as possible with the scissors and curette, followed by the application of a tampon moistened with a strong solution of chloride of zinc.

Various substances have been tried from time to time, some to be taken internally, others to be applied locally, for the purpose of curing the disease, none of which has proved of permanent value. Among them may be mentioned condurango, Chian turpentine, absolute alcohol, and alveloz. Perhaps the wished-for end will come from a combination of methods already tried, or perhaps the correct principle of treatment has not yet been found.

The problem is to remove the disease elements entirely, and furthermore to so change and improve the resisting powers of the tissues that a renewal or recurrence may not take place.

Assuming that a case has been seen while the disease is still local, the vagina, cellular tissue, and peritoneum being as yet uninfected, the uterus being perfectly movable and the ulcerative process still quite superficial, a cure may be hoped for by radical measures. I say *hoped for*, since it is beyond the power of ordinary mortals to state with positiveness in any given case that root and germ have been entirely destroyed.

The means which I prefer in the treatment of incipient cases—which, it must be confessed, are rarely met with—consist in a combination of the actual cautery and the knife.

The uterus is separated from its vaginal attachments with the Paquelin cautery and then removed with knife or scissors and ligatures in the ordinary way. The heat from the cauter-



izing instrument may destroy disease germs which are not appreciable to the eye or finger.

Theoretically, at least, such cases ought to be cured and remain cured.

In the cases which are further advanced—and these, alas, are the ones which usually come to our notice—our aim must be to remove the diseased tissue as thoroughly and completely as may be, the entire uterus being removed if possible, and other diseased tissue removed subsequently as it reappears. This plan should be repeated as often as occasion requires. In other words, such cases must be under constant observation, with the understanding that the fight is henceforward to be an unrelenting one. When the uterus and its surrounding tissues have been removed and recurrence takes place, my custom is first to remove all tissue which can be removed with a large cutting curette, apply the actual cautery to the entire wounded surface, which has been made as dry as possible, and then apply a tampon moistened with a strong solution of chloride of zinc to the excavated uterus, the tampon being first squeezed so that it will not run or drip. The tampon should be retained, as a rule, for twenty-four hours; but if it is very painful or causes great swelling it may be removed earlier. The vagina and external genitals must be kept constantly covered with vaselin, for the chloride of zinc causes an abundant acrid, watery discharge which excoriates any unprotected tissues with which it comes in contact. The nutrition of the patient should be constantly guarded and maintained as efficiently as possible, stimulants being freely used, and the pain, which in the later stages of the disease is severe, subdued by sufficiently large doses of morphine. There need be no fear of the formation of the alcohol or opium habit in such cases, the object being to make the patient as comfortable as possible. By these means and by regulation of the bowels and a careful regard for cleanliness, the offensive discharges being frequently washed away by hot water combined with carbolic acid, permanganate of potash, or creolin, the lives of these unfortunate human beings may be made relatively comfortable.

And, after all, to relieve pain, to soothe distress, to make the pathway to the unseen world as easy and gentle as possible, while it is not as brilliant or satisfying to the ambition as the restoration of the sick to health and usefulness, is not, as it seems to me, an end which is unworthy the efforts of any man who has the welfare of his fellow-beings at heart.

EXTRAUTERINE PREGNANCY.<sup>1</sup>

BY

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(With illustration.)

WHEN again referring to extrauterine pregnancy, on which so much has already been written, I will say at the beginning that I shall refrain from considering the subject in detail, but purpose to call special attention to the variety generally called "abdominal pregnancy," and take as a basis an instance which apparently was a secondary abdominal pregnancy. Two previous cases seen by me could not be utilized for careful study, but fortunately the conditions for this were favorable in the last instance, and I beg to express my high appreciation to Prof. William H. Welch, of Baltimore, for his painstaking work with the specimen.

I hope, however, to be pardoned for so frequently alluding to the great importance to every physician of learning to make a diagnosis in all cases of ectopic gestation. The impression prevails that such knowledge has been generally attained, but my own experience teaches otherwise. Only two weeks ago I saw a woman with the history that she had been a widow several years, who had been menstruating sixteen days and then suddenly fainted; she had been seen by six different physicians and also one specialist within a few hours prior to my visit, and, without a single exception, each diagnosed that the attack of fainting and subsequent collapse was due to the prolonged loss of blood during menstruation. It seems to me that none of the gentlemen endeavored to get an accurate history, due perhaps to the woman's widowhood. When seen by me the patient was semi-conscious, but from her sister I elicited the following data: The patient had previously been regular; had at no time missed a single period; her present so-called menstruation, which, however, had ceased on the previous day, was also on time; the color of the blood

<sup>1</sup> Read before the New York County Medical Association, April 17, 1899.

was stated to be pale; the flow had *not* been *continuous* for sixteen days, but it would at times cease for a few hours and then start again quite profusely; at times cramp-like pains were present, which at previous menstrual periods were not complained of. The attack of "fainting" was sudden, and upon recovery retching and vomiting took place at frequent intervals, with much pain in the lower abdomen.

*Status Presens.*—Patient semi-conscious and pulseless; the abdomen distended; the percussion note flat nearly up to the umbilicus—the lower percussion was made, the more pronounced was the flatness. Tenderness in the hypogastric region was evident, despite the existing collapse. Above the region of flatness the percussion note was tympanitic. Vaginal examination showed the cervix to be larger and more succulent than normal; the uterus could not be mapped out, but in the cul-de-sac there was a fulness as though fluid filled the pelvis. No colostrum in the breasts. With these data it is hard to see why a diagnosis should not have been made, especially by the gynecologist. I operated soon afterward, after first infusing two litres of normal saline solution directly into the vein, and the blood squirted out of the abdomen in a jet as though from a fountain. She was still bleeding. It was found that she had an interstitial pregnancy. The embryo slipped between my fingers in the enormous quantity of fluid and clotted blood, and I did not waste time in making a careful search for it. The placenta was removed and the large rent in the horn of the uterus closed by a continuous suture, after removing the adnexa of that side.

This is only one illustration out of a goodly number of similar instances which have come under my observation. I therefore deem it my duty to once more direct attention to the most prominent symptoms, any one of which, however, may be absent; in fact, sometimes all are wanting, and the extra-uterine fetation does not make itself manifest until rupture with profuse intraperitoneal hemorrhage and collapse.

A menstruation delayed from a few days to several weeks, its reappearance marked by more or less colicky pain and irregular flowing or "spotting"; the peculiarly characteristic tenacious, dark chocolate appearance of the blood; the passing of a membrane (decidua); a small tumor to one or the other side of the uterus; colostrum present in the breasts without a recent pregnancy having existed—any or all of these symptoms should lead us to suspect an extrauterine pregnancy.

Moderate enlargement of the uterus, with slight softening in texture, is an additional factor; but great stress need not be placed upon this sign, because other conditions may produce it.

Tubal abortion does not differ in its symptoms from a partial tubal rupture, but in its objective signs it differs in so far that the small tumor, which in partial rupture is irregular in outline and varies in size according to the amount of sanguineous exudate, is not present in abortion. In it only the enlarged tube is felt.

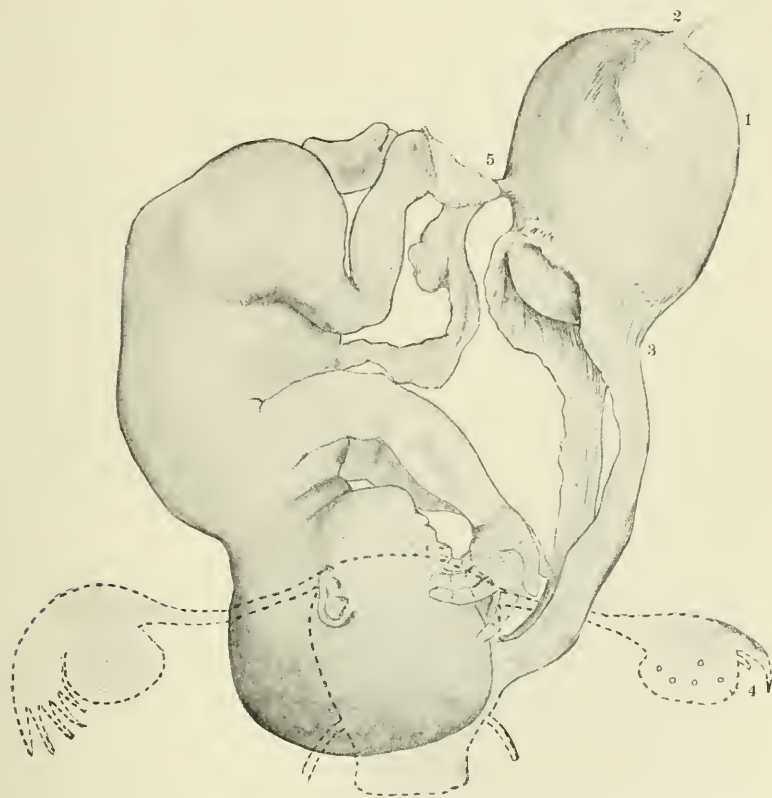
It is difficult to realize that a gestation, once to some extent developed in the Fallopian tube, can escape into the abdominal cavity and there continue to develop up to or nearly to full term, in every respect like a normal intrauterine pregnancy; nevertheless such is the case. The history of the case from which the specimen presented was obtained is the following: A. K., æt. 30 years; married seven years; one child six years ago; no other pregnancies. Menstruation regular until October, 1897; then she began to lose some blood every two weeks, the flow lasting one and a half days, accompanied by cramp-like pains during the first few hours, and on one occasion by pains continuing a whole night. In December a large amount of blood and a flesh-like clot was passed, after which her health improved and no more blood was passed until April, when a flow of three days' duration was present; at that time fetal movements were also felt. Since May 30 patient has been constantly flowing in moderate amount. The cul-de-sac of Douglas is filled by a very hard tumor, which is slightly nodular and conveys the impression of a calcified fibroid; a softer tumor is in the left part of the abdomen with its upper border on a line with the umbilicus; it is of globular shape and does not seem to be in connection with the tumor in the cul-de-sac. On the right side there is also a tumor, irregular in outline, nearly as large as that on the left side, apparently in connection with the pelvic bone. The abdomen is excessively sensitive to touch, especially about the tumors. The uterus does not appear to be enlarged and is held fixed between the tumors; the cervix is patulous, admitting the first phalanx of the index finger.

*Diagnosis.*—Extrauterine pregnancy or multinodular fibromyoma, examination and history favoring the former.

Operation August 6, 1898. On opening the abdomen the umbilical cord was first seen, apparently partly macerated. The fetus was lying entirely free in the abdominal cavity among the intestines; no liquor amnii was present and no



sac. The head was wedged tightly into the cul-de-sac of Douglas; it was this which gave the impression of a fibroid. It was encapsulated by pyogenic membrane in its lower portion; this pyogenic membrane did not extend beyond the boundaries of the true pelvis. The tumor felt in the left side was a globular oval, firm in consistence, and was connected by a hollow pouch (remnants of the sac, as per subsequent examina-



1, Placenta; 2, attachment to intestines; 3, remnant of membrane; 4, partly obliterated left Fallopian tube; 5, entrance of cord into placental tumor.

tion) in the left lateral part of the pelvic cavity. The umbilical cord passed into the abdominal tumor. The uterus was but slightly increased in size, but more succulent than normal. The broad ligaments were absolutely normal, except more succulent. The tubes and ovaries were increased in size, but not pathological. The left Fallopian tube was slightly elongated and the abdominal opening and fimbriae partly obliterated.

The following is the report by Dr. Welch, who kindly examined the specimen:

*Examination of Specimen of Extrauterine Pregnancy.*

"The specimen consists of a firm, oval mass to which is attached a piece of the umbilical cord, and of a detached fetus to which is also attached a part of the umbilical cord. The specimen has been hardened in alcohol.

"*Fetus.*—The fetus has the dimensions of about an eight-months embryo. It measures 43 centimetres in length from vertex to heel, the length from vertex to tip of the coccyx being 30 centimetres. The head is compressed laterally, but otherwise there is no visible external abnormality. The sex is female. No trace of a membrane envelops the fetus. There is a small detached piece of membrane in the jar containing the specimen. The part of the umbilical cord attached to the fetus measures  $6\frac{1}{2}$  centimetres in length.

"A microscopical section through the cutis and extending into the deeper muscles shows well-stained nuclei in the epidermis and cutis, but only scattered stained nuclei in the deeper parts; here faintly stained or unstained nuclei are visible. The absence of proper nuclear staining in the deeper parts may be due to imperfect preservation, the entire fetus being placed in alcohol. The fetus externally shows no evidence of maceration.

"*Placental Mass.*—The oval or egg-shaped mass measures 15 centimetres in length, 10 centimetres in width, and 8 centimetres in thickness. One of the broad convex surfaces is flatter than the other, and one extremity or pole of the oval is narrower than the other. The consistence of the mass, as felt through the exterior, is firm but elastic. In general the external surface is smooth and even, but in places there are slight projections or knots. There are over one-third of the surface, chiefly the flatter side, many tags and shreds of broken fibrous adhesions. These are delicate and none contain any large blood vessels. Nothing suggestive of a pedicle is present.

"The piece of umbilical cord attached to the mass measures 12 centimetres in length. It is attached  $2\frac{1}{2}$  centimetres from the end of the smaller pole. There is in the jar a loose piece of umbilical cord 5 centimetres in length.

"The mass is enveloped in a thin, smooth fibrous covering of a grayish color, with here and there brownish-red patches caused by extravasated blood. This outer smooth fibrous

covering appears somewhat thickened and irregular along an oblique line surrounding the smaller pole close to the attachment of the umbilical cord, the edge of the line being just outside of the umbilical cord, that is, toward the larger pole. This gives somewhat the impression of the small pole with the umbilical cord protruding from the capsule beyond this irregular line, but the smaller pole also has a delicate fibrous investment.

“Along this band, particularly on the side of the mass opposite the site of attachment of the umbilical cord, can be seen small, projecting, smooth villousities, which on careful inspection are seen to be shrunken fimbriæ of the Fallopian tube. This appearance, indicating intimate incorporation of the spread-out fimbriated extremity of the Fallopian tube with the covering of the mass, is evident over an area 4 centimetres long near the smaller pole. Otherwise no trace of the tube is visible to the naked eye.

“On section through the entire thickness of the mass it is evident that the mass is a placenta with a more or less distinct fibrous or capsular investment. This outer covering is laminated fibrous tissue, about 1 to 2 millimetres in thickness, in places, especially toward the smaller pole, demonstrable as a separable layer. This separation can be effected most readily near the thickened band and fimbriated area already described. Over the two poles and over much of the rest of the mass the fibrous covering cannot be separated as a distinct layer, but is intimately incorporated with the subjacent placental structure. Imperfect, irregular septa extend here and there from the outer fibrous investment into the interior.

“This interior is unmistakable spongy, placental tissue with blood spaces of small size. Its prevailing color is brownish-red (doubtless rendered pale by the action of the alcohol), with areas of an opaque yellowish or grayish-white color and homogeneous texture.

“The average thickness of the umbilical cord is  $1\frac{1}{2}$  centimetres. A loose piece of the umbilical cord in the jar measures 5 centimetres in length. The vessels in the cord appear thrombosed.

“*Microscopical sections* were made from various parts of the mass. The only nuclei which stain are those in the fibrous capsule. The part beneath this, composing the mass, consists of necrotic placental tissue. The general structure of placental tissue with chorion villi and blood vessels can be made out, but none of the cells present any differential staining. There

are numerous small patches of calcification throughout the placenta. The blood between the villi is rich in fibrin, partly fibrillated, but much of it hyaline and canalized. The appearances indicate that all circulation through the placenta had ceased before the removal of the specimen from the abdominal cavity of the patient. The outer layers of the mass were evidently nourished through the delicate fibrous adhesions already noted. These outer layers consist of laminated fibrillated connective tissue with elongated cells and in a few places clumps of lymphoid cells.

"Sections through the fimbriæ and adjacent parts reveal the structures of the Fallopian tube. The fimbriæ themselves show the irregular mucosa of the tube with numerous projections and depressions, and gland-like spaces and tubes lined with cylindrical epithelium are evident in the outer fibrous covering of the mass in the neighborhood of those fimbriæ, and indeed scattered here and there irregularly in the fibrous capsule of the mass.

"*Diagnosis.*—Ruptured tubal pregnancy.

"*Remarks.*—I understand that at the time of the operation there was no distinct evidence of rupture of either Fallopian tube, and that the tubes appeared intact, save that the abdominal extremity of one was closed. I think that the most probable explanation of the condition is an entire separation of the abdominal part of the Fallopian tube, in which placenta and fetus had originally developed, from the uterine part of the tube. That the abdominal end of the tube is connected with the detached placental mass is evident from the preceding description. One can also think of the possibility of an aberrant ostium of the tube and of a pregnancy developing in a diverticulum of the tube, but the explanation just given seems to me the more probable one.

"At least a part of the fibrous covering of the placenta is the wall of the Fallopian tube. The appearances indicate that a small part of the placenta—represented by the smaller pole with the attachment of the umbilical cord—protruded through the abdominal ostium of the tube into the abdominal cavity. As one passes toward the larger pole evidences of tubal structures disappear.

"As already stated, the placental circulation had ceased by the time the specimen was removed from the body, but how long before the operation it had ceased it is difficult to say. The chorion villi are completely necrosed, and the blood spaces



in the placenta are filled with old coagula. Calcification of the placenta was in progress, and there are homogeneous areas in the placenta resembling white or anemic infarcts. There is no evidence of infection.

“WILLIAM H. WELCH.”

Convalescence was uninterrupted, and, so far as I know, the woman is enjoying excellent health at present.

The nearest approach to my case, in the table of 79 cases cited by Harris<sup>1</sup> of advanced extrauterine pregnancy, is the case of John M. Taylor<sup>2</sup>: “No sac nor liquor amnii existed. The head of the child was elongated in the occipito-frontal diameter, and, viewed from above, its horizontal outline is seen to be irregularly concavo-convex, the right side being centrally depressed and the left correspondingly prominent. Behind the central depression on the right side the posterior part of the right parietal bone is elevated into an unnatural eminence or boss, the suboccipito-vertical diameter on this side being deeper than on the left side. There were also abnormalities of the neck and the right lower extremity.”

A later instance, resembling mine in some respects, and which came to my notice a few days after my operation, was the case of Franz Neugebauer,<sup>3</sup> which, however, was exceedingly gratifying, the operation being performed with a living child. Patient, æt. 36 years, had two children and aborted once. The last menstruation was from February 3 to 6, 1897; she then began to flow on February 10, for a period of six weeks, during which she complained of intense pain which compelled her to remain in bed; even subsequently she suffered intensely, so that the frequent use of morphine was a necessity. On September 16 the diagnosis of extrauterine pregnancy, with child living, having been made, she was operated upon without waiting until full maturity of the child, on account of the continuance of severe pain. The child lacked twenty-four days of full maturity; it was entirely free in the abdominal cavity, and there was no evidence of membranes and practically no amniotic fluid. The placenta, which was attached to the posterior surface of the bladder, except for a small marginal portion which adhered to the anterior surface of the uterus, separated spon-

<sup>1</sup> Kelly's "Operative Gynecology," vol. ii.; *Monatsschrift für Geburtshilfe und Gynäkologie*, August, 1897; and *THE AMERICAN JOURNAL OF OBSTETRICS*, 1887.

<sup>2</sup> *Transactions London Obstetrical Society*, 1891, p. 119.

<sup>3</sup> *Centralblatt für Gynäkologie*, July 30, 1898.

taneously. Only around the edge of the placenta some remnants of the membranes were found. The diagnosis of an advanced extrauterine pregnancy is usually not very difficult, unless some complicating features in the objective signs exist and the child is dead. Under such circumstances it is readily conceivable that it may be mistaken for other conditions, especially if the patient is not intelligent enough to give a clear history.

The question of treatment is very serious. If the child is living the patient should be placed amid proper surroundings, under constant supervision, and upon indication of pseudolabor the abdomen should be opened. It is especially advisable in this class of cases to wait until the child is about mature, because of the lack of development in children which are carried extrauterine. In nearly every instance of this variety of pregnancy the child has showed a defect of some kind; therefore they are given the best chance to exist, subsequent to their liberation, by allowing them to come as near to term as possible. If it is impossible to place the patient amid such surroundings, it is best to operate as soon as may be after the seventh month of gestation, because false labor pains may set in at any time and destroy the life of the child. If, however, the patient is not seen until after the death of the infant, it is best to wait with the operation until one can feel relatively certain that the circulation in the placenta has ceased, so that, if at all possible, the entire product of conception may be removed without great risk of hemorrhage from detachment of the placenta.

The placenta in an advanced ectopic pregnancy is the most important element to deal with, because it is *never* normal, it varying so much in size, position, and vascularity that no specific rule can be laid down which will hold good for all cases; each must be dealt with as the circumstances may require. The placenta may be attached to the iliac fossæ; in the cul-de-sac of Douglas; to the uterus; to the bladder, intestines, mesentery, stomach, liver—in fact, to any part inside of the abdomen. Because of our inability to diagnose this attachment before opening the abdomen, it is best to wait, if the case is not seen until after the death of the child, until the vessels of the cord have become obliterated and the placental function has ceased.

If the placenta is so situated that it can be removed at the time of operation, this should be invariably done. If this

cannot be accomplished, then the operation can be made practically an extraperitoneal procedure by stitching the sac (if one is present) to the abdominal parietes and packing it loosely with gauze. If neither course can be adopted, the cord should be tied as close as possible to the placenta, the abdominal wound left open, and sterile gauze packed loosely around and over the placenta. With this procedure there are two elements of great danger—first, sepsis, and, second, secondary hemorrhage, even if the process of decomposition and separation of the placenta is gradual; yet under the circumstances it is the best procedure. To cut the cord short and close the abdominal wound, although it has been done with a successful termination, is, in my opinion, more hazardous.

54 WEST FIFTY-FIRST STREET.

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## THE TREATMENT OF ECLAMPSIA BY INFUSION OF SALT SOLUTION,

WITH REPORT OF THREE CASES.<sup>1</sup>

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BY

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IN looking over the literature of this subject, having seen very little about it, it occurred to me that it would be interesting to report these cases, especially as the results were so gratifying in every respect. Eclampsia is not rare; its dangers to the mother, and especially to the unborn child, are great; and even if the former should escape immediate death, she is liable to infection or to chronic nephritis, and sequelæ involving the psycho-motor centres are not uncommon. Indeed, one of the most forcible sights that it has ever been my lot to witness was a case of acute mania following eclampsia. The patient had to be held in bed and prevented from doing injury to herself and every one around her. Then there is a certain amount of interest in the uncertainty attached to eclampsia, as we know that neither the pathology nor the treatment has as yet been definitely settled upon. Of course, with such a limited number

<sup>1</sup> Read before the Medical Society of the University of Maryland, January 17, 1899.

of cases at my disposal, no very definite conclusions can be drawn; but having seen a number of cases treated without the use of salt solution, and comparing the results with the results in these cases which I bring before you, the advantages in the latter method seem evident. It will be noted that in all of these cases the prognosis is extremely grave for both the mothers and their infants, the convulsions occurring not only before labor but some time before labor was due. To emphasize the gravity, especially of the first case, Winckel<sup>1</sup> says he has seen but one recovery after eighteen attacks. It will be seen that in this case the patient had been in convulsions seventeen hours when seen, and, as well as can be estimated from the history given by her husband, not less than twenty-five convulsions had occurred. All of the cases occurred in the out-patient department, and owing to the surroundings it was impossible to attend to them at their homes, so all were brought to hospital, and of course some time was lost in so doing.

CASE I.—L. M. C., age 23, had one child and one miscarriage; age of child 1 year. Previous pregnancies normal. Patient was seen by one of the house physicians; had been in convulsions seventeen hours.

*Condition.*—Edema of feet, legs, thighs, hands, and face. Respiration slow and labored, showing signs of pulmonary edema. Comatose.

*External Examination.*—Presentation, vertex; position, left; variety, anterior; height of fundus uteri, midway between umbilicus and ensiform cartilage; apparent duration of pregnancy, eight months. Fetal heart heard to left of median line and below umbilicus, very slow and weak; estimated size of fetus, small. Head not engaged in pelvis.

*Pelvic Measurements.*—Spinæ ilii, 27 centimetres; cristæ ilii, 28 centimetres; trochanters, 30 centimetres; Baudelocque's diameter, 18 centimetres; conjugata diagonalis, 10.5 centimetres; conjugata vera, 9.5 centimetres. Pains weak and irregular.

Patient brought to hospital, and as soon as possible prepared and anesthetized with chloroform.

*Internal Examination.*—Cervix partially obliterated, rather rigid; os sufficiently patulous to admit one finger; dilatation could not be effected with fingers. Accouchement forcé was used. Cervix incised to vaginal vault. Internal podalic version done and child extracted. Operation occupied seven

<sup>1</sup> Abstract in AMERICAN JOURNAL OF OBSTETRICS.



minutes. Hemorrhage was very profuse from both uterus and cut in cervix. After sufficient amount of blood was lost it was necessary to tampon vagina and uterus, sterile cotton pledgets being used for this purpose. Patient stimulated with strychnine, whiskey, and digitalis hypodermatically. As soon as possible normal salt solution (six grammes to one litre of water) was injected into the cellular tissue under the mammary glands; 1,000 cubic centimetres were used. Nine hours after delivery a second injection of salt solution of 1,400 cubic centimetres was given. On the following day the tampon was removed and the uterus washed out with sterile salt solution and 1,400 cubic centimetres injected subcutaneously. On the third day 1,400 cubic centimetres of sterile salt solution were injected, making in all 5,200 cubic centimetres in three days. After each injection the change in the patient for the better was marked.

*Medicinal Treatment.*—Mostly eliminative. Bowels: Croton oil three drops with olive oil two drachms, followed by drachm doses of Epsom salts every hour until effectual; chloral hydrate forty grains and potassii bromidum one drachm by rectum and afterward when necessary. Kidneys: Dry cups over groins; infusion of digitalis one half ounce every four hours. Diet: Milk alternating with white of eggs, and whiskey one drachm every two hours for first week, after which time gradually brought to solid diet; during convalescence a tonic of iron, quinine, and strychnine. Highest temperature, 100° F. on third day; after that time perfectly normal. Patient discharged from hospital on twenty-first day perfectly well.

Child practically dead when born; all methods of resuscitation failed to revive it.

*Urinalysis.*—Very dark and cloudy in appearance; specific gravity, 1030; reaction, acid; sugar, none; albumin, five per cent; amount in twenty-four hours, 13 ounces. Microscopical: Epithelium, hyaline and granular and waxy casts; pus cells numerous. Second day examination about same; 33 ounces secreted. Examination every day showed the condition becoming better. On sixth day amount in twenty-four hours increased to 130 ounces; albumin very little and very few casts; specific gravity, 1010.

CASE II.—A. B., colored, age 18, Ipara. Patient was seen by me at her home after having had five convulsions. Was brought to hospital immediately.

*Condition.*—Edema of feet, legs, thighs, hands, and face; semi-comatose; signs of pulmonary edema, not so marked as in first case.

*External Examination.*—Presentation, vertex; position, left; variety, anterior; height of fundus uteri, little above midway between umbilicus and ensiform cartilage; apparent duration of pregnancy, eight months and one week. Fetal heart heard to left of median line and below umbilicus; estimated size of fetus, medium. Head not engaged in pelvis.

*Pelvic Measurements.*—Spinæ ilii, 23 centimetres; cristæ ilii, 25 centimetres; trochanters, 30 centimetres; Baudelocque's diameter, 19 centimetres; conjugata diagonalis, 10.5 centimetres; conjugata vera, 9.3 centimetres. Hardly any pains at all.

As soon as preparation could be made patient was anesthetized by chloroform.

*Internal Examination.*—Cervix partially obliterated and rigid; os sufficiently patulous to admit one finger; dilatation could not be effected with fingers. Accouchement forcé used. Cervix incised as before. Internal podalic version and extraction operation occupied eight minutes. Hemorrhage, as in previous case, was profuse and necessitated tamponing uterus and vagina. Condition immediately after delivery: temperature 100° F., pulse 148, respiration 20. One-half hour after delivery, injection of sterile salt solution under mammary gland, 600 cubic centimetres; six hours after, 1,200 cubic centimetres; on second day, 1,400 cubic centimetres; on third day, 1,400 cubic centimetres—making total of 4,600 cubic centimetres. As in first case, marked improvement was noticed.

Medicinal treatment same as in first case. Highest temperature, 103° F. soon after delivery; gradually came to normal. Patient was perfectly well on twenty-third day, except for a breast abscess caused by the needle, owing to proper precautions not having been taken in the hurry and excitement of injecting salt solution.

Child asphyxiated, but was revived and is living and healthy to-day.

*Urinalysis.*—Dark in color, having flaky sediment; specific gravity, 1010; reaction, acid; sugar, none; albumin, trace. Amount secreted in twenty-four hours, 14 ounces. Amount of urea secreted in twenty-four hours, 5.47 grammes. Microscopic examination negative. Examination on second day gave about the same result; amount secreted in twenty-four

hours, 28 ounces. Fourth day, 126 ounces secreted; amount of urea in twenty-four hours, 47.04 grammes. Sixth day, chemical analysis showed about the same result, but microscopical examination showed for first time a few granular and hyaline casts, and the same result on several successive days.

CASE III.—I. S., colored, age 18, Ipara. Patient was seen by me at home after having had four convulsions; was brought to hospital immediately.

*Condition.*—Edema of whole body, especially face; comatose; respiration very bad; signs of pulmonary edema. Temperature 97° F., pulse 102, respiration 10.

*External Examination.*—Presentation, vertex; position, left; variety, anterior; head engaged in pelvis; apparent duration of pregnancy, eight months and one week. Fetal heart heard to left of median line below umbilicus. Child in fairly good condition.

*Pelvic Measurements.*—Spinæ ilii, 23 centimetres; cristæ ilii, 25 centimetres; trochanters, 30 centimetres; Baudelocque's diameter, 19 centimetres; conjugata, 10 centimetres; conjugata vera, 9 centimetres. Uterine contraction not at all strong. As soon as patient was prepared she was anesthetized, chloroform being used.

*Internal Examination.*—Cervix obliterated; os sufficiently patulous to admit one finger, but rather soft and dilatable; os was dilated with fingers, forceps applied, and delivery completed. Entire operation occupied ten minutes. Uterus contracted well.

Pulse immediately after delivery, 130. Twenty minutes post partum, injection of salt solution, 1,100 cubic centimetres; fifteen minutes after injection, pulse 104; thirty minutes after injection, pulse 97. Perineum intact. One hour and fifteen minutes post partum a convulsion occurred. The cephalic vein was opened and 656 cubic centimetres of blood allowed to flow out. The blood was very black and thick. At the same time the blood was flowing from the arm. Seven hundred cubic centimetres of salt solution were injected under the breast; pulse 98. Six hours post partum another convulsion, not so severe as previous one. Vein opened again and 192 cubic centimetres of blood drawn. Morphine, one-sixth of a grain, hypodermatically; chloral hydrate forty grains, potassii bromidum one drachm, given by rectum. After this patient was quiet. No more convulsions occurred. Total amount of blood lost, 1,600 cubic centimetres. Medicinal treatment was same

as in other two cases. Total amount of salt solution injected, 1,800 cubic centimetres. No more indications after first day. Highest temperature, 101° F. Discharged on nineteenth day perfectly well.

Child was asphyxiated, but revived after a little while and seemed in fairly good condition. About two hours after delivery a convulsion, resembling very closely those of the mother, occurred. The ligature was removed from cord and two ounces of blood allowed to flow; six drachms of salt solution injected under skin, after which it did well until, five hours later, the convulsions returned, occurring every ten minutes. Three ounces of salt solution injected into rectum and child put into continuous warm bath, but gradually became worse, and died nine hours after birth.

*Urinalysis.*—Dark in color, with little sediment; specific gravity, 1010; reaction, acid; no sugar; albumin present, but not abundant—amount in first twenty-four hours was not recorded. Microscopic examination showed very few epithelia, hyaline and granular casts, epithelium and pus cells. Second day, amount secreted in twenty-four hours, 34 ounces; amount of urea, 24.99 grammes. Third day, 120 ounces secreted, albumin diminishing in amount. At time of discharge albumin had all disappeared.

Let us consider the advantages of this method of treatment and compare it with others recommended. In order to do this the pathology of eclampsia will have to be taken up, as it bears directly upon the treatment. I will refrain from an extensive account of the pathology and only give enough to give an idea of the cause, and upon that base my treatment.

The various theories regarding the cause which have held sway for so many years, and in fact until very recently, are now regarded more in the light of history than facts. We no longer consider the kidneys as the essential factors in the etiology of eclampsia. It is not the failure of those organs to eliminate urea that determines the convulsions, for the non-pregnant woman may have anuria for several days without eclampsia; and, again, a woman may have eclampsia and her kidneys at the same time be perfectly healthy, as is shown in one of these cases, the kidney disease being the result and not the cause of the eclampsia.

Nor is the disease essentially nervous in its origin, and as a proof in this direction we see its occurrence in the colored race



as often as in the white, and the nervous system is not so highly developed in this race as in the white. Nor, as Halbertsma said, is it due to lessened excretion of urine resulting from compression of the ureters, for in two of these cases the head was floating above the pelvic brim, no pressure being exerted on the ureters at all. Strumpf believes that in some cases, under abnormal decomposition, a non-nitrogenous substance, probably acetone, is produced, and that this, in its elimination, causes irritation. Herrgott advanced the microbian theory; and while this has not been completely disproved, it is not held by the best authorities.

The theory which seems to stand ahead of all others and to meet the requirements of most cases is the result of work done by Jugens in 1886, Klebs, Pilliet, Lubarsch, Poutz, and recently and probably more thoroughly by Schmorl. The latter examined 17 cases dead of eclampsia, and the findings in each case were tolerably constant. They consisted of necroses and hemorrhage in the parenchymatous organs on the one hand and multiple thromboses in the blood vessels on the other. Placental cells were found in the general circulation, and were found in such enormous quantities as to be pathognomonic of this disease and to indicate the extreme probability that in the placenta must we seek the origin of the fibrin-producing substance which is so poisonous to the patient. Suffice it to say that, while the experiments made by Schmorl do not definitely prove the cause, still they do offer a probable explanation.

Working, then, on the basis that eclampsia is due to a poison generated by the placenta, upon that will be based our treatment.

On behalf of the kidney theory it is granted that, if the poison or poisons which cause eclampsia are retained in the blood, renal insufficiency or failure may add to the gravity of the condition, in that if the kidneys were healthy they would cast off the offending matter, but it cannot be considered as the essential cause of the disease.

The theory of blood-poisoning or toxemia is sustained by the clinical history of the disease and by the postmortem findings. The prodromata, gastric and cerebral symptoms; the serious rapid disturbance in the action of the brain; postmortem increase of temperature; the nature and frequency of nervous disorders that follow, and which are analogous to those consequent upon typhus fever and diphtheria (probably caused by

toalbumins), all play their part in making this theory more certain.

Proceeding upon the basis that it is caused by a toxin in the system, which toxin, as long as it remains, will continue its deadly effect upon the vital centres, our most rational treatment would be the removal of both the poison and the cause of the poison, and that is what we would suggest. Remove the placenta and poisoned blood from the body (or as much of it as possible), and substitute for it a fluid which is not laden with poison, but one that is sterile and which possesses properties very much like those of the normal blood. It rapidly permeates the system, filling the blood vessels and furnishing something for those and the heart to contract upon. It dilutes the poison that remains in the system, and in that dilution diminishes the power that it may have in doing harm to the patient. It stimulates the patient just at the time that stimulation is most necessary. It flushes the kidneys and stimulates them to secrete, for in the majority of cases they are not acting up to the normal. The increase in the amount of urine secreted after the use of salt solution is astounding. In Case 1 the amount increased from 13 ounces in twenty-four hours to 130 ounces on the sixth day, and in Case 2 from 14 ounces to 126 ounces on the fourth day. In Case 3 there was also a large increase. It feeds the hungry tissues and sets up a reaction that is wonderful to see.

Now let us glance briefly over some of the other methods of treatment.

*Veratrum Viride*.—This is called the “American treatment.” For the past twenty-five years this drug has been extensively employed in various parts of this country with different results. As far as my personal knowledge is concerned, having had no experience with it, I can say very little about it; but, looking at it in a common-sense way, it hardly seems that it can be of any great value. As far as I can learn, no specific action upon the disease has been claimed for the drug, the good that it does being ascribed to its power of lowering the blood pressure and so relieving the congestion and having a favorable effect upon the disease. In administering this drug and lowering the blood pressure we are not carrying out the most important part of the treatment, namely, removal of the poison. We are putting more poison into the system, and instead of stimulating the patient, which will be

necessary in a very short time, owing to the operation, etc., we are depressing her.

In considering the use of *chloroform* in this disease it may be said that when this drug first came into general use it was regarded by many as a specific, and is so regarded by a few to-day. As is well known, chloroform stimulates the bronchial secretions and in some patients produces a profuse bronchorrhea, which adds to the already embarrassed respiration due to laryngeal and pulmonary edema. Besides, the tendency it has to interfere with the action of the kidneys will sometimes lead to very unhappy results. I can recall a case in which death was due to this very cause. But fortunately the place of chloroform in the treatment of eclampsia is now pretty well settled; no one would rely upon it alone, but every one is willing to admit of its value as an adjunct to other treatment.

*Pilocarpine* is a drug that is generally condemned, as it is dangerous owing to the profuse bronchial secretions started.

*Morphine* is a useful drug in this disease, used as an adjunct to chloroform.

*Venesection*.—Hirst, of Philadelphia, says phlebotomy is at present somewhat in disfavor. He also says that physicians in the country who have to deal with strong, full-blooded people are obliged, in the treatment of pneumonia, to use the lancet; and in the same class of patients blood-letting in eclampsia is indicated. The "American Text Book of Obstetrics" quotes Kaltenbach as wisely saying that in strong, plethoric women with great cyanosis, bleeding has undoubtedly a good effect. This book goes on to say that of course it is only in exceptional cases that this treatment is indicated. And so it seems to be the general opinion that blood-letting is only indicated when the pulse is very full and bounding. I think I am right, and am sure this statement will be generally substantiated, when I say that it is only in very exceptional cases that blood-letting is contraindicated.

Bleed not only when the pulse is full and bounding, but when it is rapid and weak, if you are sure the rapidity and weakness are not due to previous hemorrhage. The pulse, under such treatment, instead of becoming weaker, will get strong and slower, as was thoroughly demonstrated in my cases. You remove the poison and relieve pulmonary congestion. The cause of the better condition of the pulse in such cases is the removal from the system and vital centres of this poison,

which relieves the heart of the embarrassment and allows it to act better.

Before concluding it might not be out of place to suggest a line of treatment, not offering much that is new, but putting it in a way that it may be speedily and systematically carried out. The treatment is divided into (1) the *pre-eclamptic*, applicable, of course only in those cases where you have been fortunate enough to have had the patient under your care before the attack; (2) *eclamptic*, when the attack comes on.

(1) *Pre-eclamptic*.—When the premonitory symptoms are noticed, especially epigastric pain, frontal headache, and disturbance of vision, prophylactic treatment should be instituted at once. This consists of the following: Purge the bowels, stimulate the skin by warm baths twice a day, both of which measures aid in elimination. Use a milk-and-water diet. Give sedatives to quiet very nervous tendency. Examine the urine quantitatively for urea; if the kidneys are not secreting a normal quantity of urea, stimulate and keep patient under close observation. If under such treatment the symptoms do not improve, or, it may be, get worse, especially if examination of the urine shows continued diminution in the amount of urea, we think that interference is justifiable.

(2) *Eclamptic*.—If, as in the majority of cases, we do not see the patient until after convulsions have occurred, the best thing is to give morphia hypodermatically at once. Of course the woman has to be delivered, but a certain time elapses before this can be done. With the morphia we may inject into the bowel forty grains of chloral and one drachm of bromide of potassium. The delivery should be accomplished as soon as possible, and our efforts must be made with this end in view.

It is usually necessary to anesthetize the patient, and chloroform must be used for this, but using as little as possible for reasons given before. The selection of operation will depend upon the conditions present. It will usually be either forceps or version, more frequently the latter. Use force if necessary. The disease cannot be treated until the cause is removed.

After delivery do not, as is usually the case, stimulate the uterus to contract, but let it remain relaxed, and bleed until the patient's symptoms show that she has bled enough. If sufficient hemorrhage does not take place from the uterus, open a vein. As soon as possible after delivery salt solution should be introduced into the cellular tissue under the mammæ. As much as 700 cubic centimetres can be injected under each.



The salt solution is not only indicated immediately after delivery, but for several days after, depending upon the condition of the patient. The next important consideration is elimination other than by blood-letting. This is done through the bowels, kidneys, and skin. The bowels appear to be especially sluggish in this disease, and the only drug that seems efficient is croton oil and that in large doses. It is our custom in the hospital to give, as soon after delivery as possible, two drops in two drachms of olive oil, the olive oil preventing the severe irritation sometimes caused. As soon as patient rouses sufficiently she is given drachm doses of Epsom salts every hour, and, if this is not effectual, an enema. The salt solution usually acts wonderfully well in increasing the secretion of urine, but if the kidneys continue to act very badly, dry and wet cups are applied and a half-ounce of the infusion of digitalis is given every four hours. The diet is exclusively milk.

To stimulate the skin the hot-air bath or the wet pack is used, each with good results. Tonic during convalescence.

In conclusion it may be said that it is impossible to realize the great advantages of the salt solution without having used it and watched the results.

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## THE DIAGNOSTIC VALUE OF PAIN IN GYNECOLOGY.

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(In two parts.)

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### PART II.

#### GENERAL CONSIDERATION OF PAIN IN GYNECOLOGY.

IN connection with what I have said of sensations of psychical origin, which does not entirely correspond to our present views about pain, it is proper to speak of pain in general as dealt with in gynecology. The atypical character of the pains already discussed is noted by all authors, and each differs in his characterization; one speaks of it as an "ideal pain," another as a "pseudo," or "psychical," or "illegitimate," or "hysterical" pain. If in contradistinction to these sensations—which are

perhaps of cortical origin—I speak now of genuine pain, I am aware that I attempt a difficult task, and I would consider my efforts in this field, and especially the classifications of the various pains, as a mere attempt to explain the significance of the same as we meet them. Pain in general is from the first of an immeasurable and inestimable magnitude. We are obliged to accept the statement of the patient; yet we cannot always take as a measure of the degree of her sensation the expression of the face, or the manifestation of her suffering by complaining, moaning, groaning, or tears, and we have to remember always that one stands pain better than another. Some pain we can closely estimate—for example, the pain of labor. It is surprising that our histories do not say anything of the patients having felt this genuine pain as something abnormal, or that the pain of an expected confinement should not be feared. Genuine pain is well borne by the hysterical, and this shows again that the hyperesthesias belong to quite a different field of sensation. Intensity of the pain we can surmise but not definitely ascertain. The extent of a hemorrhage can be judged of, the size of an exudate felt, the increase of a tumor can be made out, but in the complaint of a patient we are always compelled to accept her statement: that is the expression of her psyche. Concerning the rôle of the psyche in this I find the following interesting passage by Janet,<sup>1</sup> who says: “Up to the present time sensation has been considered to be that primal condition of consciousness which cannot be resolved into simpler elements.” He shows further that such an analysis is possible. For instance, if one says, “I feel,” then one of these words, feeling, strictly considered, is a mere incident. But it is different with the word “I”; this is an expression of personality, that is, the union of all present sensation, the remembrance of all past impressions, and the imagination of future impressions. There would, therefore, be present in the expression “I feel” two things—a small new psychological fact and a vast amount of already arranged thought, the “I.” These entities overlap and combine, and when one says “I feel” it means that the great personal conception has absorbed the small newly originated sensation. Janet says: “I would dare to make the comparison that the ‘I’ is an excessively hungry, living being, a sort of ameba which sends out prolongations to entrap the small beings, the slight sensations which have

<sup>1</sup> “The Psychical Condition of Hysterics,” p. 51.

started at its side, and takes them into itself." In all these hysterical perversions of sensibility there must be an exaltation of the *ego*, an exaggeration of the personal sense.

Pain is the worst torture of man. Because of pain we send quickest for the physician; pain most easily excites his compassion, most easily gives him cause for interference. But what is pain? Is it only an exaggerated tactile sensation? Even tactile sensations have a psychical character. The touch of the hand of a stranger conveys a sensation distinctly different from that of a friend. It is also known that one cannot tickle himself, and that sensations which various persons may feel from the same irritant are manifold.

What does physiology understand by pain? Herman, Bricker, and Landois describe tactile nerves, which carry sensation of pressure and temperature, and, besides these, special nerves that convey the sensation of pain. These very likely have different peripheral endings and different perception centres in the brain. In proof of this are the following facts:

1. That visceral nerves convey sensations of pain, but not tactile or temperature sensations.

2. That, when under the influence of narcotics, tactile sensations may persist while the sensation of pain has been abolished.<sup>1</sup> This view of the specific pain nerves with their special end organs is also advocated by Frey and Richett, while Oppenheim looks upon the nerves of the vessels as the transmitters of pain, and Gowers would have the tactile nerves play the same rôle. Goldscheider absolutely denies the existence of specific pain nerves. He refers to the observation of Naunyn. The latter found that a slight irritant, not enough to cause any sensation of pain, if applied rhythmically and for a long enough time would produce pain, even in the normal skin. In this way the sensation of pain can be explained without necessitating the existence of a special end apparatus and a special conducting path, which either anatomically or physiologically have not yet been demonstrated. If, therefore, the viscera are painful only during disease processes, this is explained by the supposition that it takes a prolonged repetition of irritants before the subpainful limit is passed. On the appearance of an intense acute pain we can suppose that the irritant impulses come very rapidly one on top of another, in a manner comparable to the vibrations of the hammer of an induction apparatus, but infinitely more rapid, so that even the most severe pain can be thus explained.

<sup>1</sup> Landois' "Physiology," p. 955.

But how is the pain irritant conducted? Where do the paths lead to? In other words, where is the pain centre? We have to look for it in the ganglia of the posterior gray sensitive columns of the spinal cord, and consider the nature of pain as an increased irritation of such hyperalgesic ganglia. The cord itself is supposed to be insensitive, just as the brain is not sensitive except over some very small areas. A sensitive nerve itself is much less sensitive than its endings. If these endings are abnormally excitable there is a hyperesthesia. This can be explained either by the exclusion of certain limiting tracts or by increase of function. Such exclusion of limiting tracts seems to be present in the hysterical hyperesthesias, and increase of function in neuralgia, etc. As soon as the ganglion cells of the posterior tracts are recognized as pain centres, it is evident that every centripetal irritant can excite the adjoining segment under certain circumstances. This is the only way in which we can explain the co-sensation, the so-called *douleurs echotives*. This field of co sensation has been recently carefully studied by Head. Head's conclusions have to be examined, however, if they are to carry any great weight. They are in effect as follows: Every pathological disturbance is reported to the spinal cord by sympathetic nerves. The centres for the sympathetic nerves lie adjacent to those for the sensitive nerves. If there comes, therefore, a sympathetic impulse from the periphery, it is reflected to the sensitive tract. The consequence is a tenderness of certain skin zones, and there should be a special skin zone for each visceral organ. In the presence of a renal calculus, for instance, there is a specific regional sensitiveness of the skin, with gall stones there is another, and so on through an easily understood schema.

Head's theory acquires a special significance from the fact that he found the various sensitive skin zones corresponded exactly with the areas affected in the various herpes. This opens a new and wide field in nerve physiology and pathology. Setting aside the still mooted question of the procedure of transference of a pain from the periphery to the centre, it must be a very complicated one, because different qualities of pain are reported to the consciousness in a different manner. A burn is differentiated at once from a cut, perhaps because in the one the heat-conducting, while in the other the touch-conducting, ends are especially disturbed. Physiology recognizes sticking, cutting, burning, boring, aching, knocking, pressing, knotting, tearing, picking, and dumb pain, the cause of which,



Landois says, is entirely unexplained.<sup>1</sup> Although we know very little about measuring the intensity of pain, we know still less of the process of transmission and its application in the cord and in the brain cells. As to the various qualitative sensations, we can at least make an attempt to classify them according to their causes. So we must first presuppose the existence of a visceral pain. Every organ has its specific sensation, which gives the correct interpretation of the pain originating in it. A toothache is something entirely different from an earache. A blow over the stomach is felt as a sensation entirely different from pressure in the ileo-cecal region, and pressure on the ovary is felt as a sensation akin to faintness. Pressure on the uterus produces a dull but entirely typical sensation. This visceral pain never exists by itself. We must always have an irritant in order to excite it, and the pain varies according to the nature of this irritant.

1. *Traumatic Pain*.—Here the nerve endings are either directly irritated or are pressed upon by exuded blood. Normal wound pain is very intense in the beginning, but soon diminishes in severity. It has something specific about it, and one recognizes it as a wound pain. If there is, in addition to this, chemical change in the tissues, as in a burn or eschar, then its character changes, but even then it still has something specific about it besides its changed intensity and duration.

2. *Contractile Pain*.—Examples of this are presented by the labor pain, by a distended tube or a distended bladder. This pain is typical in its recurrences and is rhythmical in character, following distension or contraction of the organ.

3. *Inflammatory Pain*.—It is caused in part by swelling of the tissues and pressure on the nerve endings, and very likely by the direct chemical or toxic effects of the pus corpuscles. It is spoken of as sticking and cutting, and, when the pressure is increased with each pulse wave, as a gnawing or beating.

4. *Neuralgiaform Pain*.—For practical reasons I speak collectively of the neuritic and the neuralgia pain, but would remind the reader that each can be distinguished frequently from the other. Neuralgic pain is paroxysmal. It has distinct intermissions, and generally it is more severe than a neuritic pain. The latter is more permanent, less intense, and of a more subdued character. It is frequently accompanied by trophic disturbances, such as herpes zoster and herpes vulvæ.

It is remarkable that in neuritis the pathological changes in

<sup>1</sup> Landois' "Physiology," p. 963.

the nerve are very great as compared with those in neuralgia, where, in spite of the very severe pain, no positive changes can be found.<sup>1</sup> Taking neuritic and neuralgic pains together, we find it typical for both of them that they follow the course of nerves. In neuralgia we find lancinating, lightning-like, very annoying sensations, which frequently increase at certain hours.

5. *Hysterical Pain*.—This is not necessarily connected with any organ or division of nerves. It chooses its zone independently of the course of nerves. These zones frequently form geometrical figures. It is dependent on psychical alterations. It is not influenced by rest. It is subject to suggestion and is referable to central disturbances. It is mostly designated as burning.

This division of pain into five categories I have chosen on a purely practical basis. Pain in general has for a long time been spoken of as wound pain, cramp pain, nerve pain, and inflammation pain.

We could, with some reservation, adopt the following divisions:

*Traumatic Pain*.—The irritation of the sensitive nerves by insults from the outside.

*Contractile Pain*.—The irritation of the sensitive nerves through muscle contraction (contraction of vessels?).

*Neuralgiaform Pain*.—Irritation of the sensitive nerves by changes in the nerves themselves, possibly also in the ganglia.

*Inflammatory Pain*.—Reflex action from disturbance in the sympathetic nerve system (trophic changes) to the sensitive nerves.

*Hysterical Pain*.—Disturbance in the central nervous system.

We will now consider the single organs belonging to the domain of gynecology.

I do not endeavor to give every source of pain, but only general examples. From these examples it will be seen that in the internal organs there are also hysterical hyperesthesias, so that to the picture of hyperesthesia of the abdominal walls we must add these similar and related manifestations.

#### VULVA AND INTROITUS VAGINÆ.

The division of the sensitive nerves is here rather complicated. The ileo-inguinal nerve supplies the region of the mons

<sup>1</sup> Böttinger: Mitth. aus dem Grenzgebiet Med. u. Chir., Bd. ii., p. 797.

veneris, the dorsalis clitoridis supplies the clitoris, the anterior labial branch of the external spermatic supplies the upper half of the labia majora, while the posterior labio-perineal branch of the pudic supplies the lower half of the same. The perineal branch of the pudic nerve supplies the labia minora, the urethral orifice, and the hymen.

1. *Traumatic Pain*.—We find it in the rupture of the hymen, rupture of the perineum and other injuries occurring at birth, in operations about the perineum, etc. The sensation of pain is very acute, but quickly disappears, except when there is a flow of urine over the injured area; then its character is changed and it is designated as being sore, with a more or less severe burning and itching, and occurs only if there is a great tension of the parts from edema of a wound edge or a hematoma of the labia. On rupture of a varix of the vulva there is frequently no pain present. I saw such a case which was mistaken for a placenta previa. The hemorrhage was enormous, but one could not suspect the source of the hemorrhage from the location of the pain.

2. *Contractile Pain*.—Some cases of vaginismus follow slight injuries of the introitus. These are the cases that may be completely cured by the healing of the fissures and after mechanical dilatation. Other cases belong distinctly in the domain of hysteria. Vaginismus is described as a painful contraction, and this contraction of the various muscular groups can frequently be seen distinctly.

3. *Inflammatory Pain*.—Here we perceive frequently extensive pathological changes without any pain, as in condylomata lata or condylomata acuminata. Even in carcinoma of the vulva there is little pain. When pus is present redness and swelling follow. Then the patient says the pus "eats." Furuncles are excessively painful. We find in gonorrhea a burning, itching, and sticking pain, and certain parts are especially sensitive, as the urethral opening, the fossa navicularis, and mouths of the Bartholinian glands, which show in this condition the macula gonorrhoeica. Special pain is also caused by Bartholinitis or senile colpitis with its sticky secretion and yellowish, thin, and shining mucous membrane. The sensation of pain which follows scratching in consequence of pruritus is also characteristic.

4. *Neuralgiaform Pain*.—We see it appearing typically in herpes vulvæ as a neuralgia of the ileo-inguinal nerve or external spermatic. It is designated as a drawing, gnawing, or

boring, is extremely annoying, is always one-sided, and is present a few days before the appearance of the vesicles. Phenacetin, antipyrin, etc., are specific remedies for this pain.

5. *Hysterical Pain*. This is of much significance in most cases of vaginismus, because it is well known that the greatest rôle is played here by central influence. Schauta<sup>1</sup> expresses himself as follows: "Vaginismus is produced by the very idea of being touched." Schröder says about it: "These cases are ordinarily of psychical nature, the consequences of excessive nervousness, and have nothing in common with mechanical irritation of the introitus."

I would like only to prove that this excessive nervousness is in many cases nothing more than hysteria and that hyperæsthetic zones can be demonstrated.

Naturally I do not consider patients with neurotic tendencies who complain of absence of libido or have an aversion to cohabitation. I mean to speak here only of genuine vaginismus. As in hysterical tic of the eyelids, in consequence of hyperæsthesia of the skin, a spasm of the orbicularis is brought about, so we have here a similar spasm of the constrictor cunni and levator ani.

The differentiation is very great between hyperæsthesia of the introitus and vaginismus, and yet Olshausen<sup>2</sup> and Winscheid<sup>3</sup> say correctly that the latter is only a higher degree of the first. It is a common occurrence that these cases of vaginismus recur after childbirth, when we certainly cannot speak of mechanical narrowing. It has been frequently recommended that vaginismus occurring shortly after marriage should be treated by removal of the hymen. He who has done this knows that a prolonged after-treatment, consisting of frequent dilatations, has to follow it. Does not that in itself show that operative interference is not curative, that it does not reach the root of the trouble? Because aqueous solutions of cocaine have no effect whatsoever on these hyperæsthesias, Olshausen long ago suspected the psychical nature of this pain. Opium suppositories are also of very slight use. This is easily explained when one considers that narcotics do not act well in hysterical pain. I have excised the hymen shortly after marriage in two cases, but hyperæsthesia was present the same as before, with the exception that it was localized in a

<sup>1</sup> Winscheid: "Neuro-Pathologie und Gynäkologie," p. 110.

<sup>2</sup> Zeitschr. f. Geb. und Gyn. Bd. xxii.

<sup>3</sup> "Neuro-Path und Gyn.," p. 169.



slightly different manner after the operation. The treatment should have been, from the very beginning, dilatation and galvanization (I use here a ring speculum which I connect with the anode). I also had a case where hysterical hyperesthesia of the introitus and of the perineal region was present. Formerly the case would have been looked upon as a recto-vaginal neuralgia, or even one of recto-vagino-vesical neuralgia.

*CASE XXVIII.—Hyperesthesia of the introitus in an elderly woman with a neuropathic tendency and all sorts of local complaints. Distinct hysterical stigmata. Rapid improvement on galvanization.*

Mrs. X., 58 years old. First menstruated at 15, slight. Somnambulistic when a young girl, and was frequently subject to stomach-ache. The disturbances of the stomach she says were less dependent on real causes than on psychical causes. She says that during her confirmation time she was a religious fanatic, and later she suddenly, without any special reason, developed an irresistible affection for every stranger, to such an extent that this inclination ruled all of her thoughts. As a young woman she was also frequently troubled with her stomach. Her physician told her it was hysterical, especially as she always had a sensation as though there was a lump in her throat. She gave birth to four living children without assistance, the last one sixteen years ago after a thirteen-year interval. Menopause at 48. Was well to one year ago, with the exception of a few nervous difficulties and of neuralgias of the lower part of the abdomen. A year ago she went to a specialist because she had a sensation of irritation in the vagina and urethra. The doctor found what he considered a malignant neoplasm and cauterized a suspicious spot on the cervix. Notwithstanding the healing of this condition, the irritation persisted. Occasionally it was a sticking, at other times a burning and an itching; besides there was present a bearing-down feeling in the rectum, vagina, and bladder, "as though she had something there." She had to run to the closet frequently, because she had a sensation as though she had something in her bowel that wanted to come away. If a small tampon was placed in her vagina the irritation was considerably increased until the tampon was removed. The frequent desire to urinate had existed when she was a young girl. Every excitement affected her bladder.

At first it was not easy to recognize the hysterical background of these complaints, since other apparent changes were present. Perhaps they were the *agents provocateurs* through which the attention of the patient had been called to these parts over and over again. It is certain that every local and technically rational treatment tended to increase the irritation and her suffering. It is also certain that these difficulties were present after all local lesions had been healed, and

finally that only the galvanic current brought relief to the suffering.

Concerning the objective changes, I found a typical senile colpitis, a furuncle of the introitus, and herpes of the left labium minus. Whatever had been done for her suffering, the sensation of irritation remained unchanged or became worse. If the vagina was cauterized with a weak solution of nitrate of silver, which acts like a charm in senile colpitis, she continued to complain; if a small medicated tampon was introduced she became still worse.

Zinc and starch, ordered for the herpes, caused an irritating crust. The same results were obtained with cocaine, in ointment or solution, lead water, mild carbolic acid wash, and sitz baths for her furuncles. There was sugar in the urine. After removal of all these inflammatory conditions nothing was found to cause her any difficulty, but her complaints were still the same. On closer examination we found the following: In the region of the clitoris, on the slightest touch with the pencil brush, there was exquisite pain, so that the patient threw herself about on the examining table. There was also a very excessive hyperesthesia at the urethral opening. The left labium minus was also hyperesthetic, and a touch on the perineal or anal region was more sensitive on the left than on the right side. On further examination we found the entire left side of the body hyperesthetic. The pharynx was anesthetic and the conjunctiva bulbi and the cornea itself. All remedies had no effect and only made matters worse. The effect of the anode was therefore a more surprising one. After the first application the patient said she had not felt so well for months, and two more séances sufficed to relieve her. Recently I saw her because all the irritations have reappeared, but without signs of disease. She requested to be galvanized again, which I have done three times, but cannot say whether the result will be permanent or not.

I will present here two further cases of hyperesthesia and subsequent vaginismus in young girls where there could not have been any injury by cohabitation.

CASE XXIX.—*Excessive vaginismus in a young unmarried girl, complicated with glandular endometritis. The vaginismus remained when the endometritis was cured. Hyperesthesia and undoubted stigmata can be referred to hysteria.*

Miss X., 33 years old; first menstruation at 14, irregular, slight, always with excessive pain in the stomach. Came three years ago into my care with excessive irregular menstruation, considerable fluor, soreness, pain in her back, and pain in the left side of the abdomen; excessive vaginismus—the slightest touch caused a convulsive contraction. Curetting under narcosis removed an excessively large amount of tissue. Microscopical examination showed a glandular endometritis. A

year after, the curetting is repeated, and this time considerably less found. Uterus was decreased in size.

A microscopical examination showed less inflammation of the glands than the first time. During these two narcoses, on account of the very painful contraction which occurred during and after each menstruation, the introitus was energetically stretched with the fingers and the speculum; but with all this the vaginismus persisted even after the cessation of the fluor. Even before touching the vulva one could see the levator ani contract, and the patient would lie on the examining table groaning and moaning. Narcotics in large doses (morphine and cocaine) had almost no influence on the pain. The same result was noted when narcotics were used for her insomnia, while a galvanization of the head was a remarkable success. On close examination we found an excessive hyperesthesia of the entire left labio-crural region. The slightest touch with the sound is designated here as pain, and she reacts to it accordingly. With the galvanic current the irritability in this region is relieved. To the right a current of four milampères is felt; to the left, corresponding to the hyperesthesia, one of twelve milampères. There is further present a hyperesthetic zone on the left of the abdomen and an analgesic zone over the right shoulder blade and right knee. Deep punctures here are not felt. The conjunctiva bulbi and the pharynx are entirely anesthetic. The galvanic current caused a temporary relief of the vaginismus, but I did not succeed in relieving the patient entirely, perhaps because there was a persistent *agent provocateur* in her family surroundings.

CASE XXX.—*Hyperesthesia of the introitus. Vaginismus of hysterical origin favorably influenced by iron and the galvanic current.*

Miss X., 32 years old; first menstruated at 14, six days' duration, slight, without pain. Four years ago she was operated on for goitre in Basedow's disease. Palpitation and shortening of breath still persisted, but the eyes were less prominent. She comes now for pain in her back. Frequent menstruation every two or three weeks, and weakness; no whites. The complaint remains the same after replacing the retroflexed uterus and the introduction of a pessary. The patient says she has cramps or convulsions at home and becomes unconscious. Just before her menstruation she has a squint (spasms), and motion in her abdomen. She dreams much of men who wish to assault her. Then there occurs a very painful contraction of the introitus, which wakes her up and forces her to moan and to cry.

Every afternoon at 4:30 she is said to have an attack of chills, followed by a sensation of heat, but with no fever. Quinine is without any action. She is anemic, there is hyperesthesia of the right abdominal walls, hyperesthesia of the clitoris and of the right small labium. On the slightest touch she turns and moans, during which the perineal muscles and the constrictors contract spasmodically. She has anesthesia of

the conjunctiva bulbi and of the pharynx. Rapid improvement followed treatment by iron and the application of the galvanic current to the introitus.

In the year 1889, in the *Centralblatt für Gynäkologie*, 1889, No. 50, I reported two cases of vaginismus of nervous origin which were cured by the use of the galvanic current. I referred then to the publication of V. Campe,<sup>1</sup> who has also cured pruritus vulvæ by the galvanic current. The pain has considerable similarity to the itching irritation noted by Goldscheider, and he called attention to the fact that in both dysmenorrhea was present; furthermore, that with the relief of this vaginismus the sensitiveness to the galvanic current was increased. At that time I did not designate the affections by their proper name—that is, hyperæsthetic hysterical zones of the introitus vaginæ.

#### VAGINA.

Concerning pain in the vagina we can be brief, because this organ is comparatively insensitive. Calmann<sup>2</sup> says: “It is surprising how rarely patients, multiparæ as well as nulliparæ, with narrow vaginæ, who have been examined a number of times, hardly recognized the carefully introduced finger. A small number do not feel it at all. Most of them designate it as an instrument known to them, or shown to them at the moment. Calmann once packed the vagina full of cotton and shot without the patient knowing that she had anything inside of her. Pessaries are ordinarily not felt. The vagina is supplied by sensitive nerves from the perineal branch of the middle hemorrhoidal nerve, the same nerve which supplies the urethra and the rectum. A dull pain is present when the vagina is distended by a very large ring. In a case of diphtheritic colpitis during pregnancy which I saw there was also a dull pain in the pelvis. Ulcerations caused by pessaries are not felt in a manner corresponding to the pathological changes present.

Primary carcinoma of the vagina causes hardly any pain. More difficulty is caused by the localized inflammation of senile colpitis. The hysterical and at the same time contractile pain is met with in the coitus captivus.

#### PORTIO VAGINALIS AND CERVIX.

We have seen that the vagina is principally supplied by a

<sup>1</sup> Centralbl. f. Gyn., 1887, No. 33.

<sup>2</sup> Arch f. Gyn., vol. lii., p. 454.



sympathetic nerve system. This is still more marked with the uterus. The hypogastric plexus sends numerous filaments through the broad ligaments, which expand on the side of the uterus and are known as plexus uterinus. Just above the vaginal wall lie the ganglia. Some few filaments coming from the internal branch of the third and fourth sacral nerves reach down here, according to Luschka. It is very likely that these are sensitive nerves. In the vaginal portion Luschka has also found nerves without having been able to trace their endings.

*Traumatic Pain.*—Although the vaginal portion of the cervix is but slightly sensitive and but few sensitive nerves have been traced to it, still the pain is very acute during the dilatation of the first period of labor. If the cervix tears, or if one makes an incision into it, this pain ceases. Perhaps we are dealing here with the contractile pain. Dissection usually does not cause much pain.

The catching of the cervix with tenaculum forceps is always painful. A very narrow orifice, behind which there is an accumulation of mucus—the so-called “pinhole os”—which causes much pain by distension of the tissues, can be relieved by dissection.

*Inflammatory Pain.*—This plays a more important rôle than is ordinarily suspected. Erosions and old cervical catarrhs cause a numb, deep pain with a sensation of fulness and sinking. I have seen a number of such cases in which the pain disappeared with the healing of the erosions by wood vinegar or the application of a dilute tincture of iodine to the cervical mucous membrane. This was the same whether we had considerable tear or not. In my opinion it is proper to talk of a specific cervical pain. Schröder says of it: “The bare mucous membrane exposed to irritation is sensitive, so that there is a numb pain in the pelvis. The painful sensations occur with greater severity if there are a large number of cysts which fill up with mucus and cause a distension of the vaginal portion. Then we have a backache, and a very characteristic burning in the depth of the pelvis.” Barnes also says: “Erosions and cervical catarrhs are a source of pain in the abdomen.”

*Neuralgiaform Pain.*—I see this form frequently from a small cervical polypus. I hear frequently, for instance, from old women that they can, after removal of such polypi, again lie on one side or the other, which had caused them pain before. Schröder also says that pain in the back originates from small

mucous polypi of the cervix, and Olshausen<sup>1</sup> saw irritation of the bladder and frequent desire to urinate caused by them.

*Hysterical Pain.*—Case 13 presented a hyperesthesia of the portio and the cervix, with a purulent catarrh, which was relieved by the galvanic current. I saw two cases in which on the slightest touch of one side of the portio vaginalis there was excessive pain. One case came from the Leipzig Poliklinik. I proved at that time to my co-assistant, Dr. Glitch, this remarkable finding. The second case I saw in Hamburg with Dr. Marben. Both cases, I am sorry to say, I did not examine for hysteria. But since Dr. Marben tells me now that his patient is probably hysterical, I would append the notes which I have of the case.

CASE XXXI.—*One-sided hyperesthesia of the vaginal portion of the cervix, probably of hysterical origin.*

Mrs. X., 31 years old; first menstruation at 10, painful. Was married at 19; has never borne children. On coition complains of a very severe pain in the vagina, of a convulsive character and radiating into the right leg. Condition of genitals normal. It is apparent that the right side of the cervix and the vaginal fornix is exquisitely painful to the slightest touch. The patient designates this sensation at once as her pain. Palpation of the pelvic organs is possible only by putting the finger against the left vaginal wall and pressing the parts from here. As soon as the right side is touched the patient groans. The mistaking of the condition for a painful exudate or a disease of the appendages can be excluded, because the slightest touch even is felt as pain on the right side and complained of violently. The uterine orifice was very narrow and not eroded. I considered the case at that time to be a neuralgia and thought that it might have been excited by the accumulation of cervical secretion behind the narrow os, and I therefore advised discission. This was done by Dr. Marben and the hyperesthesia was relieved at once. Perhaps this was a "suggestive" result. At any rate, the prompt benefit is in favor of the affection being of a hysterical nature. Dr. Marben treated the woman later for stomach trouble, and, although there was no hemorrhage, he thought at first that she had an ulcer of the stomach, but from the rapid improvement he now thinks it was hysteria.

Finally, I would cite the following case, although we are dealing here less with pain than with a hysterogenetic zone of the cervix.

CASE XXXII.—*The cervix is the seat of a hysterogenetic zone from which attacks of grand hysteria emanate.*

Mrs. X., 32 years old. Has borne two children. The vagina

<sup>1</sup> Zeitschr. f. Geb. u. Gyn., Ed., Bd. xxii., p. 434.

is rather patulous than narrow. Without there being present a sign of vaginismus, she was taken, about a year after her second confinement, at each coitus with moaning and groaning, followed by an attack of hysteria, throwing about of her extremities, a spasmodic contraction of her diaphragm and of the muscles of the back. Her husband gave up all attempts at cohabitation, and on account of these attacks I saw the patient repeatedly, and made the observation that she was taken with the same attack at each vaginal examination when the cervix was touched. She would always say: "It is coming again, I feel so very peculiar." She would begin to throw herself about and to turn; her breathing would stop. She would throw about her extremities, turn her head from side to side, curve her back, breathe heavily, whistle through the nose, bite her teeth, get purple in the face, and froth at the mouth. At first I believed that I had to deal with an excessive orgasm, but the patient said that she had no sensual sensations with it. After the attack she would lie exhausted, but would recover rapidly. I saw it occur on one occasion during an examination, before the body of the uterus or the ovaries had been touched. The introitus, as I have said in the beginning, was large and free from hyperesthesia; the attacks during cohabitation are, therefore, to be explained by the touching of the cervix. My patient had, besides, pain in her back just below the last rib on the right side, in which place was a hyperesthetic skin zone. The pain in these places was treated with all sorts of remedies, but in vain. Belladonna plaster made it even worse. Good resulted only from galvanic treatment.

At that time I did not look for other hysterical stigmata, but believe firmly that the case belongs here. In Gilles de la Tourette I find that Rosenthal has seen two cases in which hysterical attacks were excited by touching the cervix.

#### THE BODY OF THE UTERUS.

Here we meet with an important additional factor in the production of pain—the peritoneal covering. It determines a number of sensations.

*First Traumatic Pain.*—This seems to be very slight. Perforation of the uterus with a sound is usually not even felt. Rupture of the uterus I have seen repeatedly occur during labor, spontaneously or instrumentally, without the patient having experienced pain immediately or later. Once during a spontaneous rupture the patient said, "Something is tearing in me," and she collapsed at once, but without having any pain. Normal labor leaves a large open wound in the uterus, but this does not cause any pain whatsoever. Passing the hand into the uterus in order to remove the placenta is, however,

very painful ("distension contraction"). The most extensive burning of carcinoma is not followed by any pain.

*Contractile Pain.*—Not considering the pains of labor, we meet with it in dysmenorrhea, especially in the mechanical, obstructive form, when the uterus tries to rid itself of its contents which cannot pass through the narrow orifice. In dysmenorrhea with endometritis the swollen mucous membrane acts as a foreign body in the uterus. Every content of the uterus, with the exception of the normally developing ovum, causes pain, which can be traced to the occasional contraction of the organ; therefore the numb, drawing pains in incomplete abortion, the painful sensation of faintness after the death of the fetus, the disagreeable, slightly painful sensations met with in myomata, which last for years and have a special location, and the pains from polypus and endometritis. Frequently pain can be brought on artificially by the sound. The endometrium is, on touching, perhaps the most sensitive portion of the entire genital tract. Here, too, we are dealing with pure contractions, for it can be proved that with a dilated cervix the sound cannot be felt.

Calmann says we can accept without any doubt that the entire uterine cavity down to the internal os is void of sensation in pregnant women. Spontaneously pains appear when there are contents which require removal. I saw twice very advanced carcinoma of the cervix where very intense pain was complained of. The pain disappeared after curetting and the use of the red-hot iron. Another proof that it was not a pain produced by the involvement by the cancer of the nerve endings or of the peritoneum, but was caused by the contractions of the cervix, is shown in the fact that it ceased after the removal of these large masses. Afterpains are perhaps the consequence of just such attempts at expulsion when blood or lochia accumulate in the uterus. Landau<sup>1</sup> says that intermittent pain is a hysterical symptom (small doses of ergot, five drops every three hours, have a very remarkable, almost specific, action on afterpains). We meet apparently with the contractile pain in the first few months of pregnancy, when the contents of the uterus grow more rapidly than its coverings. Then we have an abnormal tension of the uterine muscles which causes pain. The pregnant uterus does not feel doughy in such cases, but is hard. It has more the consistence of a fibroma. These cases are frequently complicated with

<sup>1</sup> Zeitschr. f. Klin. Med., Bd. vi., p. 450.



severe attacks of vomiting in pregnancy (*agent provocateur* for hysterical hyperemesis), especially where the uterus is prevented from growing by old perimetritic adhesions. At the meeting of the Gynecological Society of Hamburg on October 28, 1890,<sup>1</sup> I called attention to the remarkable effect (and here we had to deal with a result which could be seen) that massage has in such cases. Since then I have repeatedly seen the same effect: first, that severe vomiting, when connected with pain in the abdomen, is met with in the distended, sensitive, hard pregnant uterus; second, that with massage the latter grows very rapidly, gets soft and doughy; third, that coincident with this the nausea and the pain disappear.

*Inflammatory Pain.*—Here the peritoneum dominates the pain. At any rate the pain emanating from it is pre-eminent. In chronic metritis we may have a numb sensation in the uterus, but it is difficult to differentiate it from contractile pain. It is the same with the pain in retroflexion of the uterus and in perimetritis.

In perimetritis, for instance, menstruation usually acts as an aggravator; however, on the contrary, the pain may be relieved. In one case that I saw, with an abscess of the uterine wall, there was no spontaneous pain present. Very frequently, in chronic inflammation of the organ, pain is located in certain parts of the uterus. Possibly one horn may be very sensitive. I am glad to see that this observation, which I have made frequently while massaging, has also been noted by Frommel.<sup>2</sup> The recto-uterine fold is especially sensitive to pressure, even with normal genitalia, and when we find here inflammatory processes or abscesses they are the cause of some of the most severe pains met with in gynecology. I remember a case with retrouterine abscess, with very slight fever, of protracted course, in which the patient cried so that one could hear her in the street. Narcotics gave but little help, and she was only relieved by incision through the posterior vaginal wall. Inflammatory processes in the Douglas pouch are especially painful, even in chronic cases. The so-called parametritis posterior, with thickening and shortening of the utero-sacral folds, supplies considerable material for the gynecological office hour.

<sup>1</sup> Centralbl. f. Gyn., 1890.

<sup>2</sup> Centralbl. f. Gyn., 1898, p. 1116: "Localized Inflammation of the Uterine Horns."

The very acute pain of an acute parametritis or perimetritis is well known. It is also well established that a great part of the pain in advanced carcinoma is due to inflammatory processes in the peritoneum.

*Neuralgiaform Pain.*—I would place here the pains occurring in advanced carcinoma, even though I believe that they do not come from the uterus itself. These are the violent pains in the back, shooting into the legs, in infiltration of the parametrium affecting the pelvic nerves. The degree of infiltration of the pelvic cellular tissue is not a correct measure of the degree of the pain, because in rapidly ulcerating carcinomata very great pain may be present with extensive infiltration of the parametria, or there may be none, or it may be very slight. One does not know whether there is a destructive process affecting the nerves or whether there is a functional disturbance of sensibility. These pains occur just as severely in recurrence after total extirpation. I would lay stress on the fact that they are of a typical neuralgic character. They appear at certain hours, usually in the evening or at night, and are referable perhaps to the toxic effect of the carcinoma on the nerves.

According to my belief, there is no better remedy than phenacetin for these carcinoma pains. It seems to have a specific effect upon them. It acted in all my cases in a similar manner and at all times. I can say that I have in innumerable cases of carcinoma accomplished more with phenacetin than with morphine. The latter, perhaps, is not to be discarded entirely.

In uterine carcinoma we may find the most unbearable pains; they radiate into the back and into the legs; but with all their severity they appear to have no influence on the sympathetic. Migraine, nausea, and vomiting are induced by vasomotor influences from the abdomen. The pelvic pains from carcinoma may be very severe without the occurrence of migraine or nausea. The stomach troubles in carcinoma are referable more to the involvement of the peritoneum. As a final example, in a trophic sense the uterus and the breast are very closely connected. We do not know that even in the most severe pain coming from the uterus there is ever produced any irritation in the mamma.

*Hysterical Pain.*—If we wish to seek proof from literature of the hysterical origin of visceral hyperesthesias, there is nothing

more interesting than the work of Routh<sup>1</sup> on "Fundal Endometritis." This is a word-picture of disease which was not approved of by gynecologists with a pathological and anatomical knowledge. Yet this observer has made very minute and careful observations, even if the conclusions drawn from his observations are not absolutely correct. Routh says: "In these cases we see that the pain is not influenced favorably by rest in bed, and that narcotics are absolutely useless." Further: "There are pains also in the back, in the lumbar regions, in the abdominal walls above the symphysis, which are intensified by the slightest touch." "There is difficulty in urination, connected with the frequent desire to micturate. In several cases I have been almost under the impression that I was dealing with a cystitis, until the normal urine taught me that it was an irritable bladder." One case had a hysterical sneezing attack, with a convulsive cough and opisthotonos, and all this is referred to the endometritis of the uterus and of the fundus, because in these cases it becomes so sensitive that the passage of the sound becomes a torture. Routh is so certain of this statement that he has asserted that Gooch, who considered that similar symptoms meant irritable uterus, has not made reliable observations. Routh also cites cases where there were false labor pains with all the symptoms of real labor, except that there was no dilatation or expulsion of an ovum following it.

A very interesting case belonging to this category I met with in consultation practice, and was able to make a diagnosis of hysterical pain. I owe the complete history to the kindness of Dr. Grapow. He writes of the case as follows:

CASE XXXIII.—An "*irritable*" uterus repeatedly simulates genuine labor pains.

Mrs. X. Was perfectly healthy when a child. Menstruation was always regular up to her marriage, coming on every two or three months, never very frequently, always slight, beginning with excessive pain associated with nausea. In the summer of 1893 she married. Fourteen days after her marriage she was taken with cramps, pain in her abdomen, and nausea, sensation of "all gone."

Defloration and the first days of her marriage had excited no unpleasant sensation. A physician, who did not know that she had been married such a short time, diagnosed an impending abortion. Her menstruation never reappeared after her marriage. I saw her for the first time in April, 1894. Up to that time she was, on account of existing pregnancy and accompanying pain, frequently put to bed and treated with anti-

<sup>1</sup> Obstetrical Transactions, vol. xii., p. 138.

spasmodics in the hope of avoiding a premature birth. On the 3d of May, 1894, "pains" began at noon; they were not frequent, but painful. May 3, 1894, she could sleep but little throughout the night on account of the "pains," which occurred almost every ten minutes. May 5, pains frequent through the night; at my visit they occurred about every five minutes. She presented exactly the impression of a *femme en travail*. She turned in bed with the pain, moaned, groaned, and became red in the face. After these pains had lasted for several days an internal examination failed to give any signs of beginning childbirth.

The head was movable above the pelvic brim, the child not mature but small. Os is not dilated. The pains gradually ceased and I saw the patient again on the 21st of June, when I was called at 5 o'clock in the morning and found the labor progressing favorably and the os open the size of a dollar.

At 11 o'clock she gave birth to an apparently over-mature child. Mrs. X. nursed for four months; menstruated after that twice every four weeks without pain.

The second conception took place early in February, 1895. In April she complained again of pain in the abdomen, and examination of the anterior surface of the lower part of the uterus showed it to be very sensitive. Narcotics, as opium, morphine, belladonna, by the mouth, vagina, or rectum, and gentle massage of the uterus, gave only a transient relief. Occasionally she stayed in bed; gradually the pain disappeared. On the 4th of November "pains" occurred every ten minutes, then more frequently. In the evening at 7 the patient sat in a rocking chair and complained of pains every five minutes, which made the impression of intense opening pain. During the pains the uterus became hard and erected itself, but, with all that, by 11 o'clock at night there was no beginning of labor. At 2 o'clock in the morning Mrs. X. pleaded that she had to bear down, but examination revealed no dilatation. In the morning of the 5th the pain occurred more seldom, was weaker, of shorter duration, and disappeared for the entire day.

On the 6th, at 1:45 in the morning, the birth occurred, with the brow to the front.

In 1896 Mrs. X. was not impregnated, but during October she had repeated pains, for which narcotics and antineuralgics (phenacetin and quinine) were useless. Galvanization gave no results. Gradually the symptoms lessened, but reappeared at intervals. On the 2d of January, 1897, during an examination, she had another attack. The patient went home and the pains immediately disappeared.

Toward the end of October, 1897, she believed herself to be impregnated again, and counted on the middle of July, 1898. In the beginning of June she again had pains, and on the 8th of July at 1 o'clock I was telephoned that she had had pains every seven minutes since 9 o'clock. At 1:30 I again found the picture of a woman in labor. The pains were apparently very



strong. With regular pauses the nurse knelt by her bedside and supported her back. The husband helped to hold her. The woman had an intensely red face, and threw herself in bed from side to side. The examination revealed the cervix far back, undilated. The head was small and ballotted above the pelvis. Toward 4 o'clock in the morning the pains gradually ceased, and I left the patient at 6.

On the 10th of July, at 7 o'clock in the morning, I was telephoned that she had regular pains, but my examination confirms the previous condition.

On the 23d of July, in the evening, I was called because the pains were severe and recurred every five minutes. I found the same condition. In the night of the 24th of August I was called again for a supposed labor; finally on the 2d of September came beginning of labor. This, for a third labor, progressed exceptionally slowly. In the evening at 6:45 the child was born, with the brow upward as in the second baby.

This was not over term. Convalescence normal. She nursed the baby and felt well.

With hyperesthesia of the uterus of hysterical character we have to class a large number of cases of dysmenorrhea. We saw that our histories showed regularly the presence of dysmenorrhea, the pain continuing even while the flow was free. It proved that there was no mechanical or obstructive dysmenorrhea. Whether the visceral hyperesthesia extended to the tubes and ovaries, or was confined to the uterus, it is difficult to say. In Cases 12 and 13 both ovaries were removed, and yet when menstruation reappeared it was very painful. It is known that the intrauterine use of the galvanic current was curative in many cases of dysmenorrhea. It is possible that in these cases visceral hyperesthesia existed, which is favorably influenced by the current as are the hyperesthesias of the abdominal walls.

We usually employ the negative pole for the intrauterine applicator, because we desire to produce a hyperemia of the endometrium and the consequent easy flow.

The following case I would cite from my own practice as an instructive example of a frequently occurring condition, and which formerly would undoubtedly have been classed as ovarian dysmenorrhea.

*CASE XXXIV.—Dysmenorrhea for one and a half years following psychical excitement, perhaps with the ergot medication (agent provocateur?). Distinct hysterical stigmata. Great sensitiveness of the right ovary, which is apparently normal. Following "suggestion" and galvanic treatment, the next menstruation occurred without pain.*

Mrs. X., 22 years; menstruation at 17, irregular, very frequent, at that time without any pain. On account of the very frequent menstruation she was treated at the age of 18 in the hospital with rest and "drops." As soon as the patient could enter service again the menstruation appeared too frequently, but still without pain. One and a half years ago, when the patient was in service, she could not agree with the other girls. She was herself very irritable, and on account of disagreements she had considerable psychical excitement. Since that time her menstruation is always painful, especially when a physician gave her some drops to stop her flow (ergot?). The pains became so excessive that she had to give up her position. Occasionally they appeared eight days before her menstruation, and then would outlast the bleeding by three or four days. She would lie in bed during that time and would feel faint. She was treated a number of times for leucorrhea; her bowels were irregular and sluggish; she had palpitation of the heart on going upstairs. She was always tired and had cold feet. Uterus of a normal size, non-sensitive. The cervix was not eroded. Right ovary lay to the front, next to the uterus, was movable, smooth, and of unusual sensitiveness to the slightest touch.

The patient was examined by Dr. Sanger for her nervous symptoms, and he designated them as hysterical: the conjunctiva reflex was absent, the cornea reflex lowered; there were anesthetic zones on the neck, the forehead, and the cheeks. The field of vision was narrowed.

I gave this patient Bland's pill, and call attention to the fact that she had taken iron in several forms before. After that I galvanized her twice a week, with the positive pole over the right ovary, the negative on the back. The current was just strong enough so that the patient could feel it. During this sance I acted suggestively on the patient by telling her that now we should look at her condition from an entirely different standpoint and very likely a change would occur. Three weeks after the first examination she came, radiant with joy, and told me that the menstruation came on without any pain. She was under the impression that she had the whites, and to her surprise it was blood. At other times she knew of the appearance of the blood eight days beforehand. I would specify that in this case no local treatment was resorted to. Not even a sound was passed on examining the uterus. The patient was examined only twice per vaginam. During the first examination two observers ascertained the fact that the right ovary was very sensitive and that the patient designated this as being her pain.

The second time, eight days later. I examined the patient myself, and was greatly surprised that the hyperesthesia of the right ovary could not be made out. I found her hysterical stigmata to be just as evanescent as these symptoms, excepting an analgesia of her tongue. I could not discover other stigmata, yet when Dr. Sanger examined her a few days before the

above-mentioned stigmata were all demonstrated in my presence.

#### OVARIES.

According to Luschka these are exclusively supplied by the sympathetic nervous system from the spermatic plexus. Herff<sup>1</sup> considers the largest proportion of the ovarian nerves to be purely nerves of the blood vessels.

*Traumatic Pain.*—The rupture of a follicle during menstruation is, if one wishes to designate it so, a trauma, and is not felt under normal conditions; on gynecological examinations not every ovary is sensitive. It appears to be less of a pain than a specific sensation bordering on faintness. Pressure on an ovary, or the ligation of the same during laparotomy, causes considerable shock, which can be noticed even during the deepest narcosis.

To my regret I had no case in which I could try Schleich's anesthesia of the skin while testing the sensitiveness of the ovary. In order to answer this question I wrote to Dr. Schleich, who says "the normal peritoneum is entirely insensitive, as is also the peritoneal covering of the tubes and ovaries." Further: "I recollect two cases in which the non-inflamed ovary was absolutely without any sensation to the puncture by hypodermatic needle." "From this it is evident that their parenchyma is also insensitive." "I have not made exact observations on pain during the ligation of the pedicle." In his book, on page 223, he says in reference to another organ: "It is remarkable that I find the parenchyma of the kidney almost entirely without any sensation, so that the transfixion of the substance of the kidney is hardly noticed by the patient and may be done without any anesthetic."

*Inflammatory Pain.*—It is surprising that in the many inflammatory processes on and about the ovary patients never complain of the characteristic sensation spoken of above as exciting faintness. The pain from inflammation can be differentiated with difficulty, because the neighboring tissues, and especially the peritoneum, are always involved. As it is an organ which functionates every month with a hemorrhage into the abdominal cavity, it is evident that adhesions and formation of exudates must here be very annoying. It is a fact, however, that such adhesions cause in one case severe pain, while in another they are not felt at all. Pain is caused principally by ovaries adherent in Douglas' pouch. This pain does

<sup>1</sup> Zeitschr. f. Geb. u. Gyn., Bd. xxiv., p. 297.

not depend on the ovary, but on the accompanying peri-oöphoritis and the complications in the Douglas folds. How often do we meet with prolapsed and fixed ovaries without any complaint! All cases, and especially those with sensitive normal ovaries, have to be examined for stigmata, because, as in vaginismus, hysteria may be the principal cause of the pain.

*Neuralgiaform Pain.*—Much has been written about neuralgias and neuroses of the ovary, but most of the cases have to be classified as hysteria. I mean that anatomical reasons force one to this conclusion. According to Luschka all the ovarian nerves come from the sympathetic. These sympathetic nerves do not conduct the sensation of pain, but they very likely have a small admixture of sensitive fibres, since when the organ is diseased pain undoubtedly emanates from it. Anatomically speaking, this is not a domain for neuralgias in the strict sense of the word. Olshausen<sup>1</sup> says of ovarian neuralgias: "They occur, without doubt, but usually in hysterical patients with numerous other pains. Isolated ovarian neuralgia occurs in unilateral and bilateral descensus of the ovary and is frequently the cause of great pain. The diagnosis of isolated ovarian neuralgia, in the absence of hysteria, is a most difficult one to make, and has to be based first on the persistent sensitiveness to touch of the organ, in the absence of any inflammatory changes about the same or its surroundings." (Normal size and normal surface.)

This description itself is sufficient, in my opinion, to lead us to suspect a hysterical basis. In a discussion in the Berlin Obstetrical Society, Martin opposed the idea of *ovarie* (ovarian neuralgia), and said that the pain originated independently of displacement of the organ from an inflammatory irritant, while Gusserow, who also spoke against it, considered venous stasis to be the cause of the pain.

I have intentionally cited these opinions here, because the contrary views of the foremost specialists compel us to search for the cause of *ovarie*, ovarian neuralgia, ovarian neurosis, or whatever one chooses to call it, in hysteria. We have to consider always whether a sensitiveness of the organ is not dependent on a hyperesthesia of the same, and, with other stigmata, is only a part of the symptoms of a general disturbance of psychological equilibrium.

*Hysterical Pain.*—Landau's case of excessively sensitive dermoid tumor belongs here, as do also the two cases of Char-

<sup>1</sup> Zeitsch. f. Geb. u. Gyn., Bd. xxxii., p. 426.



cot<sup>1</sup> in which he has proved the existence of *ovarie* in a growing uterus. It was possible here, with the ascent of the organ, to follow its hyperesthesia and to make sure that the pain came from the ovary. In Cases 12 and 13 we had prolapsed ovaries in Douglas' pouch, the painfulness of which was not to be attributed to their abnormal position or their adherence; in one case the ovary was removed and the patient was worse than before the operation. The essence of *ovarie* Kyri<sup>2</sup> believes to be the special painful pressure points on the skin corresponding to the points of emergence of the perforating branches of the intercostal nerves. He holds the same views that are met with in Head's work, and believes that there are really pathological changes in the ovary, and that the segments of the sympathetic are in functional relation, through the communicating branches and the spinal ganglia, with the cerebro-spinal nerves. According to Head's views the disease is projected from within to the outside along these nerve paths. Winscheid<sup>3</sup> claims that the ovary cannot be the only factor taking part in this phenomenon, because *ovarie* is found also in men, as well as in people whose ovaries have been extirpated.

He<sup>4</sup> says further that a condition similar to *ovarie* can be excited by pressure on any part of the body, and that it is found when we are looking for it.

#### THE TUBES.

The tubes, according to Luschka, are supplied by sympathetic fibres from the uterine plexus and partly from the spermatic plexus. The normal tube does not seem to be sensitive to pressure; it acts like the intestine. I am surprised to hear that others can feel the normal tube on combined examination. It is, when one feels it during laparotomy, soft like the gut, and is just as little recognizable through the abdominal walls as is the normal vermiform appendix.

*Trauma.*—In the rupture of a tubal pregnancy there is frequently only very slight or no complaint of pain. Pain seems to appear only when the ovum is not expelled entirely, or when the hemorrhage does not flow into the free abdominal cavity,

<sup>1</sup> Gilles de la Tourette, p. 99.

<sup>2</sup> Verhandl. der Deutschen Gesellsch. f. Gyn., Bd. v., p. 385.

<sup>3</sup> "Neuro-Pathologie u. Gynäkologie," p. 107.

<sup>4</sup> Monatschrift f. Geb. u. Gyn., Bd. ii., p. 484.

but between the folds of the broad ligament, so pressing it apart and stretching it.

*The Contractile Pain.*—The contraction of the tube during tubal abortion causes pain. This pain, with its periodical occurrence, is typical and characteristic. In one case of sarcoma of the tube which I saw, with a large blood-flow into the lumen of the tube, there was also very severe colic-like pains besides the persistent pressure pain. Here, too, the tissues of the broad ligament were forced apart by the blood. Hypertrophy of the tube with thickened muscle may also cause pain. I have recently operated on a case in which there were recurring pains for months, which disappeared on removal of the tubes, which were the size of the thumb. Pus-containing tubes are also frequently the seat of considerable pain. The contractions are the cause of it, as is evident from the fact that in hydrosalpinx, which may get to be the size of a child's head, whereby the wall of the tube becomes extremely thin, we do not have any pain. I have seen two such cases. "The pain and the pyosalpinx can be removed by a simple puncture and aspiration through the vagina. At least I am convinced that a complete cure is possible through this small interference. One patient on whom I performed this operation eight years ago had been complaining for years of this excessive pain. After removal of about a cupful of pus by aspiration the pain has not recurred."

#### URETHRA AND BLADDER.

The urethra is supplied by the pelvic branch of the middle hemorrhoidal nerve; the bladder by the sympathetic nerve; the peritoneal covering by the peritoneal branch of the ileo-inguinal nerve.

*Traumatic Pain.*—The urethra is a sensitive organ. No matter how carefully catheterization is carried out, it is felt as a very unpleasant and frequently painful sensation, but the localization as to where this pain comes from is very vague.

Calmann finds, for instance, that women cannot tell with certainty whether the urethra or the vagina has been touched. Small injuries to the mucous membrane, which occur frequently on catheterization, produce soon after their occurrence considerable pain on urination. The dilatation of the urethra to the diameter of a finger has to be undertaken always in narcosis on account of its painfulness. We meet with unavoidable tears

which seemingly do not give spontaneous pain. Injuries to the bladder are apparently not painful.

We know that vesico-vaginal fistulas may be caused by the pressure of a pessary without the patient having complained of pain. Stones and foreign bodies may lie in the bladder without causing pain, provided that no catarrh is added to it and that the sphincter is not directly irritated.

*Contractile Pain.*—The greatest part of the suffering on catheterization is probably due to the contraction of the sphincter. The same is true of all complaints of tenesmus in urethritis and cystitis. A very peculiar bearing-down pain is caused by an overfilled bladder, but even this comes from the region of the sphincter, because in ischuria paradoxa the bladder can be distended to an enormous extent without there being a sign of pain.

In hypertrophy of the organ and reduction of its capacity the contents may be very small and yet produce a bearing-down pain. The pain caused by a distended bladder in childhood or after laparotomy is known to all.

*Inflammatory Pain.*—Inflammatory pain is sufficiently known from the history of acute catarrh of the bladder. It belongs among the most annoying sufferings in existence. How differently two neighboring organs behave in reference to this! In purulent catarrh of the uterus there is but slight, while in acute catarrh of the bladder there is considerable, pain. The latter is very likely caused by the contractile element, for a woman who has cystitis accompanying a vaginal fistula does not feel it, except by the increased irritation of the external genitals caused by the overflow of the decomposed urine. For this reason the advice is given to produce a vesico-vaginal fistula in persistent catarrh with tenesmus.

I have seen very annoying pain in tubercular cystitis and in all cases of persistent gonorrheal cystitis. In these affections all washings of the bladder are frequently useless or cause irritation and do more harm than good. In a few cases the introduction of an iodoform pencil into the bladder has given me excellent results in relieving pain and reducing irritation.

*Neuralgiaform Pain.*—Under the heading of "irritable bladder" a neurosis of the bladder is described. I am of the opinion that this picture of disease should be revised by the advice to look for hysterical stigmata, because a number of cases undoubtedly belong to the next category.

*Hysterical Pain.*—Olshausen<sup>1</sup> calls "the irritable bladder" a hyperesthesia of the bladder, but he does not mention anything about hysteria. Now, since we have learned to know the hysterical hyperesthesias of so many organs, it is improbable that the sensitive bladder can be exempted from this general consideration. I think furthermore that, if we say that we have to deal here, too, with hysterical hyperesthesia, we show a modest acknowledgment that we do not know much about the condition, but we are better off than when we consider it as a "neurosis." Olshausen thinks a formerly existing catarrh the cause of the supposed neurosis. I believe that if a catarrh has existed and has been cured, every cause of irritation depending on it has ceased with it. That the latter should reappear as a neurosis, even after a successful cure, as Olshausen has seen in two cases, is a very unusual occurrence, especially since we have a better explanation for it. I could just as well say that, in the same way, "hysterical people suffer from reminiscences," that in connection with these reminiscences of the cured catarrh in these cases these localizations of hyperesthesia have developed; and since reminiscences do reappear, therefore the irritable bladder also recurs. This opinion is not modified even if Olshausen has relieved such cases repeatedly by cocaine injections into the bladder. Hysterical people can be relieved by all kinds of remedies. Guserow saw the irritation disappear after an injection into the bladder. Jacquet throws aside cocaine and favors electricity, and Martin, who has made in two extremely bad cases vesicovaginal fistula, has been successful with that. I am therefore of the opinion that this picture of the disease has to be re-examined.

With the term "neurosis" we are not satisfied. A neurologist would ask at once, "What kind of a neurosis?" With the word "neuralgia" it is the same, because the neurologist has a definite picture in his mind, and with this the irritable bladder does not correspond. Sticker<sup>2</sup> mentions a case of hyperesthesia of the bladder which he believes to be hysteria. Two other cases I would like to mention here:

CASE XXXV.—*Following a puerperal anemia, and perhaps from a remembrance of catheterization eight months after childbirth, a typical irritable bladder developed. Sorrow over the death of her child (psychical trauma) made*

<sup>1</sup> Zeitschrift f. Geb. und Gyn., B l. xxii.

<sup>2</sup> Zeitschr. f. Klin. Med., Bd. xxx.



her suffering worse. *Distinct hysterical stigmata are present; failure of all local therapy.*

Mrs. X., 23 years old. First menstruation at 11, excessive, eight days' duration, with terrible pain; has to lie down frequently with it. Patient has shown a very markedly diminished desire to pass water; frequently she had to urinate only twice in twenty-four hours.

A year ago she was delivered with forceps. The placenta was expressed two hours later by Credé's method. In the meantime she had lost considerable blood, so that she had many fainting spells and was pulseless (*agent provocateur* No. 1). For eight days she was catheterized (*agent provocateur* No. 2), but no catarrh of the bladder followed, her physician reports. She suffered after that time from very profuse menstruation. She was well then for eight months, except for palpitation and weakness. Four months ago she had pain in her back and frequent painful desire to urinate. The latter grew worse and finally unbearable. She had to urinate every few minutes, and had a desire to do so again right after it. The urine was clear; always free from pus corpuscles, blood, and albumin; it became turbid only once; after passing it microscopical crystals, coffin-shaped and stellate, were found. The treatment by her physician consisted in giving salol, decoction of uva ursi, urotropin, and sixty-one washings of the bladder, first with two per cent boric acid solution, finally with one-tenth per cent nitrate of silver solution. As long as the washings continued the patient felt better. Soon after that she complained again, and her affection became worse after each psychical excitement. Her condition became especially bad after the sudden death of her baby eight months ago (psychical trauma, *agent provocateur* No. 3).

Her physician states that she can compose herself considerably, but after the most careful catheterization she reacted intensely. Occasionally he noticed a white vaginal fluor. It was never purulent. On three different examinations he found normal genitals with no erosions. The menses were regular but profuse, and yet without any influence on the bladder complaint. The patient had always cold feet, palpitation, and was easily tired. She was a corpulent woman, but easy to examine. Absolutely normal genitals; hyperesthesia of the bladder region on the slightest pressure from above. Urethral ridge is not particularly sensitive. Excessive sensitiveness on catheterization. Urine entirely normal. Hyperesthesia of the entire right side of the body, anesthesia of the pharynx and conjunctiva bulbi.

The patient was first given Blaud's pill, and bore it well. She was furthermore galvanized by me a few times, and treated by the house physician with hydrotherapy. Local treatment was not resorted to, and the result was that the symptoms of irritable bladder, the desire to urinate, and the pain on passing water disappeared entirely.

The following occurrence is of interest. After she had been

to see me a couple of times, I told her carelessly during the course of the conversation that I had promised her physician that she would improve in eight days, and said: "Now, although you are better, you are not entirely cured." I noticed at once that the words had made an impression on her. When she reached home she could not pass any water, and for a few days she had to be catheterized. Now, after three months, I have seen her again for the first time in consultation. She does not complain any more of her bladder, but only of a hyperesthesia of the abdominal walls to the right. Slight pinching to the right is felt as intense pain. Even the touching of the skin with a fine hair pencil is felt intensely. On account of this hyperesthesia she is still under treatment. I would remark here only that the irritable bladder disappeared entirely without any local measures or treatment other than suggestive therapy supported by iron medication, galvanization, and hydrotherapy.

CASE XXXVI.—*Dysmenorrhea when a girl. Married an old man; is still a virgin three years later (agent provocateur). Hysterical cephalalgia. Favorably influenced by galvanic current. Four years later she is suddenly taken with an excruciatingly painful bladder affection, with normal urine, and in the absence of any organic disease. Hyperesthesia of the bladder region. Rapid cure by keeping her in the clinic and by galvanic treatment.*

Mrs. X. I have known her for the past six years. She is 38 years old. First menstruation at 15, painful; was chlorotic. The periods after this stayed away for a long time and then recurred with increasing pain. The dysmenorrhea was especially bad after the patient got married. The husband was 53 years old. The pains frequently occur, now with crying spells, and with such psychical alterations that the house physician feared for a time that there might be a psychosis developing. I was called in for the dysmenorrhea, and found that after three years of married life she still had an intact hymen, which bled after examination. The uterus was small. Considerable clear cervical mucus; left ovary slightly enlarged. I desisted from all medical treatment and ordered cotton-root tea to be taken during the period. It came then with less pain, but other troubles about the head became more prominent. There was boring pain in the brain, so that she could not sit up; heaviness, vertigo, inability to think. I used here the galvanic current for the head, negative pole to the nape of the neck, positive pole to the temples and supraorbital region, with very favorable result. The patient did not know how to express her gratefulness, and said that since she had become an entirely different person. Later she returned to me on account of headache, nausea, insomnia, and wished to be galvanized on the head. Her husband died and she went through considerable during that time. She considered this to be the cause of her illness, and once more the current gave relief. Then I did not see her for a year; she was fairly well throughout this time. Suddenly she was taken with terrific pain in

the region of the bladder; she had to urinate every minute, with an unusual amount of pain. She lay in bed moaning, the house physician having used a number of narcotics without any result. There was no fever. The urine was entirely clear. The slightest touch of the abdomen above the symphysis was excessively painful. Such internal examination as could be carried out with these excessive pains showed nothing. I removed the patient intentionally from her relatives, who were very uneasy about the continuous moaning and groaning. One could easily speak here of hallucinations of pain. After a few days' use of the galvanic current and persistent use of valerian and bromides, her trouble disappeared. I see the lady frequently, and two years have now passed without any trouble.

#### PERITONEUM.

Besides the fibres from the sympathetic nervous system, the peritoneal covering of the pelvic organs is, according to Hasse, supplied by the following nerves: the lower portion of the pelvis by the peritoneal branch of the ileo-inguinal; above this by the peritoneal branch of the ileo-hypogastric; still further up by peritoneal branches of the intercostal. In certain pains, for instance, as in pain of the stomach or in intestinal disease, the pain cannot be or is only very poorly localized, while in other conditions, as perimetritis or typhlitis, this can be done with great precision.

*Traumatic Pain.*—This seems, if we do not deal at the same time with inflammation, to be very slight. If a laparotomy wound bursts and the intestines prolapse they are frequently not sensitive at all. If one operates after Schleich's method, so that there is complete anesthesia of the skin, one can handle the gut without causing pain. I saw a case in which there was a spontaneous rupture of the uterus, and the examining physician, in looking for placenta, had dragged out fifty-six centimetres of the intestine. The patient died thirty-six hours later with full consciousness, without having the slightest pain, but with gradual collapse. It is also said that the Chinese who, in committing hari-kari, cut their abdomens open, die a painless death.

*Inflammatory Pain.*—One is very much surprised at the severity of the pain of inflammation. We can hardly understand it if we consider the scant supply of sensitive nerves as described by Hasse. Perhaps this is explained in a way by the greatly extended surface which is exposed, but even in localized peritonitis it is just as severe. We find a similar

condition in other organs. Muscles and bones are but slightly sensitive to traumatism, while in trophic disturbances and inflammations they are excessively painful. That the splenic nerve carries sensation and pain directly is not very probable. We know but one pain which comes from the sympathetic nerve; that is the contraction and paralysis of the blood vessels which causes pain, as, for instance, in migraine. Why is the uninflamed peritoneum without any sensibility and the inflamed one so exceedingly painful? Schleich wrote to me that, according to his idea, in the normal intact connective tissue the sensitive nerves are isolated. As soon as there is any change from the normal in the tissues the isolation ceases. He compares this with excessively painful granulations. He has looked for nerve fibres in them after most careful staining, without finding any. He believes, therefore, that there is here a surface contact between the infiltrated and deeper lying nerve endings, through the agency of the pathologically changed connective tissue. It seems to be certain that every rough tearing or contusion of the peritoneum causes pain, so that we have painful sensations on the tearing of adhesions or ligation of the pedicle. Therefore also the pain from the excessive movements of the fetus in the last weeks of pregnancy. The so-called peritoneal cysts, sacculated remains of a past inflammation, with yellow, clear albuminous contents and very thin walls, frequently met with in laparotomy, are also very painful.

Recently I performed a laparotomy on a patient who, on most gentle examination, complained of severe pain, and who had been unable to work for months. She was much emaciated, the abdominal walls were thin, and it could be very clearly made out that there was a tumor of unusual sensitiveness. At the operation we found, besides other changes, that the cause of her pain was a number of thin-walled peritoneal cysts, up to the size of a goose egg, covering the pelvic organs from above almost entirely. When these were removed the pain almost entirely disappeared. If these cysts are in Douglas' pouch one can remove them very easily and without danger by puncture and aspiration. I have succeeded in doing this repeatedly. We are speaking here of a condition analogous to the so-called blind hernias (*Taubenhernien*) which are filled with peritoneal exudate and are also excessively painful.

*Hysterical Pain.*—Since, according to Charcot, every viscus may be hyperesthetic, we cannot deny the existence of a hysterical hyperesthesia of the peritoneum. In Landau's case,



after the removal of the hyperesthetic dermoid tumor, there remained in the same region diffuse hyperesthesia which could be attributed only to the peritoneum. We have seen in Case 15, after the removal of the uterus from below and the ovarian tumor from above, that there was a persistent visceral hyperesthesia of a hysterical character. This was very likely due to the peritoneum.

#### LUMBAR AND SACRAL REGIONS.

This is a particularly difficult chapter for study, and every investigation, even the deepest one, must of necessity remain incomplete. This should be, therefore, only an attempt to classify the pains complained of in this region. One can say that this region is the first central office and the first substation in the connecting net of telegraphic communication between the pelvic peripheral sensation in and about the abdomen and consciousness. If we look over the entire domain of gynecology we find that almost every affection may, under certain circumstances, cause pain in the small of the back. We find the most varied conditions expressed by the symptom back-ache and pain in the small of the back. Here we meet with changes in the position of the uterus—catarrh, labor pains, carcinoma, prolapse, parametritis—in short, the small of the back is the sensitive centre for all morbid changes occurring in the pelvis.

The brain refers the sensation to an entirely different location from that in which it really originates. We do not possess any histological examination of the nerves in all these conditions, and we have to take it for granted that the spinal ganglia is the place where these pains are localized. Concerning the nerve supply of the lumbar and sacral regions, we find, according to Hasse, on the surface of the middle and below, the sacral branches of the dorsal nerves, and, further up, the internal branches of the same nerve; laterally, the lumbar branches of the dorsal nerve and the internal branches of the same. In the depth, counting from below up, we find the peritoneal branches of the ileo-inguinal, ileo-hypogastric, and the peritoneal branches of the intercostal nerves. Between both regions lies the spinal column with the cauda equina and the spinal nerves.

*Traumatic Pain.*—The surgeon deals with this more than the gynecologist. We may be called upon to take care of a

decubitus, a fracture or dislocation of the coccyx in consequence of trauma during childbirth.

*Inflammatory Pain.*—A well-known picture is the acute muscular rheumatism known as lumbago. More difficult to diagnose is the chronic rheumatism, which plays here an important rôle. If the patients say that the pain is worse after getting out of bed, and if they feel it especially when single muscle groups are strained, as, for instance, in turning in bed, then the pain complained of is very likely within the muscles. In such cases I have been successful with massage, which I carry out myself. Severe cases I send to Wildbad. I believe, further, in the existence of a chronic inflammation in the region of the sacro iliac synchondrosis, and I have seen such cases after severe labors with narrow pelvis. The pain and the sensitiveness correspond exactly to the course of the synchondrosis. Here we frequently succeed with salicylates and derivatives applied to the skin. Further, we have to consider the gouty process, the arthritis deformans of the spine and chronic arthritis of the spine.

*Neuralgiaform Pain.*—When speaking of pain in the back we have to consider under this heading neurasthenia. Spinal neurasthenia is the result of the tiring, the exhaustion of the nervous system especially, and in general of the entire organism. The muscles of the back, especially the small of the back, have to do the heaviest work—they have to carry the burden of the trunk. The following muscles are concerned in the work: latissimus dorsi, the serratus posticus, erector spinæ, sacrolumbalis, longissimus dorsi, spinalis dorsi, quadratus lumborum, the multifidus spinæ. Every tired feeling of the trunk shows itself in this place. It is the spinal irritation of the older school, and, in a broad sense, the region of Hager's spinal cord symptom.<sup>1</sup> Every weakening influence must manifest itself here first. In that way we can explain to a certain extent the pain of the lumbar region in prolonged catarrhs and after severe hemorrhages. The desire to have support for the small of the back is characteristic of this neurasthenic condition; therefore the beneficial result from a plaster and rest in bed. In these cases the complaint is not limited to one or the other side, but it is bilateral. It is the entire small of the back that is painful. The principle in the treatment consists in the removal of the weakening agent and the increase in the nutrition of the entire body. We must take into consideration

<sup>1</sup> See Winscheid.

the fact that, of all the organs, the nervous system is the slowest and most difficult to recuperate. Leaving out of consideration the neurasthenic, painful, tired sensations, we have frequently to deal with genuine neuralgias of the intercostal and sacral nerves, with their painful pressure points, their typical limitation and unilateral location. To the neuralgiaform pain in the small of the back we have to add a large number of sensations which have their origin in the pelvis but radiate to the small of the back. Such are the pains of labor, especially of the first stage, the pains in retroflexion of the uterus in exudations, especially when complicated with metritis and endometritis, when the uterus is heavy and sensitive, and even in retro-uterine hematocele or carcinoma, in descensus and prolapse, in endometritis, etc. This pain is always worse the more closely its cause is located to the recto-uterine fold, that gynecological bane, which is quite painful on palpation and pressure even in a normal woman. The pulling of this region upward during the dilatation of the cervix in labor and downward during prolapse, pressure on it by a retroflexed uterus, by exudate, by a hematocele, the pressure of a carcinoma—the final effect of all this is to produce an irradiation to the back. On this irradiation Head's discovery would throw a new light, should it be confirmed. We have spoken of it above, and it suffices here to say a few words about it. Head says: "Every visceral irritation is transmitted to certain sections of the posterior gray columns. Here the irritation causes a reaction of certain skin nerves, so that from the existence of certain pains on the surface of the body conclusions can be drawn regarding the existence of internal disease." A special rôle is played here by coccygodynia. According to Olshausen,<sup>1</sup> in each severe case it is the result of a local trauma. That this is not true of all cases Olshausen himself admits.

He mentions a case of coccygodynia in which the patient claimed to have fallen forward and not on the back, and he concludes that the trauma acted by pulling on the coccyx by the fixed muscles. In contradiction to this Graefe<sup>2</sup> has seen coccygodynia occurring during pregnancy, and attributes but slight significance to trauma as an etiological factor. Trauma holds here the same relation as previously existing vesical catarrh does in "irritable bladder." The result of a trauma usually either disappears rapidly or is a lasting one, but here

<sup>1</sup> Zeitschr. f. Geb. u. Gyn., Bd. xxii.

<sup>2</sup> Zeitschr. f. Gyn., No. 15, p. 344.

we see often, exactly as in irritable bladder, that the difficulty begins a long time after a relieved cystitis. The pain occurs a long time after the suspected trauma is cured, and recurs after a space of time. I doubt myself that retroflexion of the uterus can be the cause of a coccygodynia, and Winscheid<sup>1</sup> says this idea must be only cautiously accepted. More frequently hemorrhoids or fissures in ano simulate that disease. I have seen a number of cases in which pain coming from a fissure in ano while sitting and defecating was referred by others to the sacrum. According to Olshausen,<sup>2</sup> the extirpation of the coccyx is followed by a certain and a lasting relief in coccygodynia.

This is contradicted by Charcot, who says: "La vu resister a la résection du coccyx, ce qui d'ailleurs est un temoignage en faveur de sa nature psychique." Such a case I will cite here. It was the only one in which I considered an operation necessary, and just here it failed.

*CASE XXXVII.—Coccygodynia, without known cause, resists all therapeutic measures; after removal of the coccyx the pain shifts to the sacrum.*

Mrs. X., 34 years old. First menstruation at 15, with severe pain. Gave birth five years ago to a child at full term; labor normal. Menstruation was regular, without pain, not excessive. She complains of pain in the coccyx, especially on sitting down or standing up. She sits, therefore, sideways on the chair. The pain has existed for the past eight weeks without any known cause. Her physician, who suspected an inflammation of the periosteum, treated her with rest in bed and ice without any result. Genitals are normal. The galvanic current, which is ordinarily useful in all such cases, was here a complete failure. The same was the case with cocaine suppositories, bromide, valerian, phenacetin, and other remedies. Patient complained a great deal. When she pointed to the painful spot she touched on each occasion with her finger the point of articulation of the coccyx with the sacrum, so that I was convinced that it must be in the joint and that there was a chronic inflammatory process. The extirpation of the bone was therefore resorted to. Later it was found entirely healthy and the joint was free from any change. The wound was sutured and healed by primary union. Olshausen thinks that the healing of the wound by primary union in resection of the coccyx is almost an impossibility. The patient complained after the operation just as she did before it. She referred her pain now entirely to the sacrum. The pain was just the same three-quarters of a year later. She was in the meantime away

<sup>1</sup> "Neuropath. u. Gyn.," p. 112.

<sup>2</sup> Zeitschr. f. Geb. u. Gyn., Bd. xxii., p. 438.



in the country and had taken baths. A local physician found a retroflexed uterus and referred her backache to this. This retroflexion I could make out. It was replaced by massage and the uterus retained by a pessary. But the pain remained just the same. It was not relieved by iodide of potash, salicylates, or the galvanic current. In this case I could not prove the presence of hysterical stigmata. I sent her to Dr. Säger, who considered her condition as one of spinal irritation of neurasthenia.

*Hysterical Pain.*—Charcot mentions two hysterical zones alongside the spinal column. They are usually along four or five vertebræ in the dorsal and lumbar regions. Many pains in the back can be referred to this, and it is an extremely difficult matter to differentiate between them and genuine pain, which is of so very common occurrence here. In diagnosing hyperesthesia of the abdominal walls we deal with a simpler problem. I cite the following case as very likely belonging in this category:

CASE XXXVIII.—*Hyperesthesia of the back in a hysterical woman. Laparotomy performed thirteen years ago for salpingitis. Now refers her pain in the back to abdominal hernia and requests a new operation.*

Mrs. X., 35 years old; was anemic when a girl, and had to go to Saizungen on account of her throat trouble. Menstruation at 15, excessive, with pain. Married at 23; never bore children. On account of sterility, the whites, and backache, she went to the university, where a pessary was introduced; after the introduction of the sound by one of the doctors she was taken with a severe inflammation in the abdomen. She remained in bed for eight weeks, being treated with ice for her high fever. On account of her backache she went to a gynecologist, who treated her first with pessaries and with uterine tents, prolonged massage with curetting, and finally he told me he removed the left tube for gonorrheal disease by laparotomy. On the left side there was a total removal. On the right side she retained part of the ovary, and the retroflexed uterus, after being freed from its adhesions, was fixed to the abdominal wall. Now, one would expect that after such a radical treatment everything ought to be well. On account of the backache she came to me, believing an abdominal hernia following the laparotomy to be the cause of it, and wished to be operated on again. After the operation her menstruation ceased and she suffered considerably from *molimina*; besides that there was occasionally a purulent vaginal catarrh and constipation. On the right side of the lumbar region there was a distinct hyperesthesia of the skin. On repeated examinations the right side of the coccyx was extremely sensitive; there was a hyperesthetic skin zone to the right over the sacrum and to the right

from the linea alba, corresponding to the abdominal hernia. The pharynx was anesthetic. The same with the conjunctiva bulbi. Patellar reflex increased. I have treated this patient now at intervals for the past eight years, and she always comes back with the proposition that an operation should be done, if possible, on the hernia to relieve her backache.

#### ABDOMINAL WALLS.

We return now to our original subject. The abdominal walls are, according to Hasse, supplied by the following sensitive nerves: the region of the mons veneris, by the ileo-inguinal; the part lying above that to the height of the crest of the ilium, by the ileo-hypogastric. Along the course of the recti sensibility is supplied by the abdominal branches of the intercostal nerves; to the side from them, by the lateral branches of the intercostal nerves; above the umbilicus, in the centre, by the internal branches, and laterally by the external branches of the intercostal nerves.

*Traumatic Pain.*—We see it—not considering the injuries from a fall or contusion—in laparotomy wounds that give a typical example of it. Its severity depends on the way in which a wound heals, and teaches that in wounds that heal by primary intention pain lasts but twenty-four or forty-eight hours. If painful sensations exist after that time we are certainly dealing with an infection. The lower angle of the wound, in the region of the hair, is especially prone to suppuration. A sensitiveness of the wound through the dressings points to it.

*Contractile Pain*—Contractile pain we hardly meet with in gynecology. The contraction of the muscles in carcinoma originates probably from peritoneal irritation and is in itself not painful.

*Inflammatory Pains* we meet in laparotomy wounds and abscesses of abdominal walls. It is remarkable that abdominal muscles are but little prone to rheumatic affections, while we meet with them so frequently in the muscles of the back.

*Neuralgiaform Pain* occurs in intercostal and lumbar neuralgias. Neuralgia also is seen in neuritis with herpes.

*Hysterical Pain* is the main subject of the present work. I have endeavored to prove in the histories presented that they present very peculiar sensations of pain, independent of any visceral disease, or of neuralgias in the true sense of the word.

One could just as well speak of “irritable abdominal walls” as of “irritable uterus,” “irritable bladder,” or “irritable

breasts." I have tried to refer these symptoms to hysteria. Whether all of my cases belong to this category I will leave undecided. Perhaps a later observer will succeed in isolating new and other groups. Some cases may, perhaps, better be classified with neurasthenia than hysteria. *I refer here especially to the hyperesthetic form of neurasthenia, which, according to Binswanger,<sup>1</sup> is a transitory form of hysteria,* a mixed form, the so-called hysteroneurasthenia of the French. We do not know anything of the nature of these pains, but one thing we do know, and that is that they have nothing in common with disease of the viscera. In order to distinguish them better from genuine pain which is met with in gynecology, I have considered the latter separately and tried to group them together. Looking at them in this light the hyperesthesias will belong in a distinct category.

If I have succeeded by this presentation of my ideas in calling the attention of gynecologists to the fact that before they take the knife in hand to interfere in a given painful affection they should think of the very common occurrence of hysterical hyperesthesia, then the object of my work has been fulfilled. The reproach to the gynecologist by the practical physician and the neurologist, the furor for indiscriminate operations after recognition of the psychical nature of these pains, would be checked. It is evident from our presentations that when for a painful local trouble a rational treatment is used and is of absolutely no use, we are very likely not dealing with a local trouble, but we have a hysterical hyperesthesia. Even should we find a local morbid condition, that may be complicated by coexisting hysteria.

It has been generally conceded that hysteria plays an important rôle in the causation of hyperemesis gravidarum. The same factor has to be considered with vaginismus, pruritus, coccygodynia, irritable bladder, ovarian neuralgia, dysmenorrhea, and a large number of backaches and pains in the small of the back.

There is no better illustration of the correctness of this than Schäffer's<sup>1</sup> case, with pruritus, vaginismus, one-sided ovarie, and hyperemesis gravidarum in the same patient at different times of life. The knowledge of hysterical hyperesthesia is of special importance to the operator. Castration for neurosis has almost ceased, but other laparatomies, which are made

<sup>1</sup> Binswanger: "Neurasthenia," p. 218.

<sup>2</sup> Centralbl. f. Gyn., Bd. xevii., No. 12.

only because the skin is sensitive or because one finds an especially sensitive ovary in the Douglas, must also cease.

I cannot close better than by giving verbatim what Brodie says concerning hysterical coxalgia, the so-called Brodie's symptom. He sums up in the following words:

"Partout la sensibilité morbide siège dans l'enveloppe cutanée. Si vous pincez la peau, la malade se plaint plus que si vous poussiez la tête du fémur dans la cavité cotyloïde."

What hysterical coxalgia is to the surgeon, hyperesthesia of the abdominal walls is to the gynecologist. He should pinch them in all cases in which there is a complaint of pain. He should try the abdominal walls on the right side and on the left side, and he will often be surprised.

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#### LESSONS FROM TWO HUNDRED AND TWENTY-FOUR CONSECUTIVE ABDOMINAL SECTIONS.<sup>1</sup>

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BY

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DURING the year 1898 I performed 224 abdominal sections. By abdominal section I mean any operation requiring the opening of the peritoneal cavity, and by 224 cases I mean that many patients. The material is so large that it would require much space if I were to cover exhaustively every branch, and so I will only pick out in each class of operations one or two points which may be interesting.

*General Considerations.*—The anesthetic used was chloroform. In a few instances it was changed to ether before the operation was finished, if it was found that the patient did not take the first anesthetic well. In five or six cases ether was used from the beginning, because of extreme weakness or to satisfy the demand of the patient or her friends. Chloroform I have used in cases profoundly collapsed from hemorrhage and with serious valvular heart disease. In two of the cases in which ether was given pneumonia developed, and in only two cases was any marked suppression of the urine noticed.

<sup>1</sup> Read before the Detroit Medical and Library Society, April 10, 1899.



*Ligatures.*—In all cases dried sterilized catgut ligatures were used, prepared by the method of Böckmann, except in a few cases where kangaroo tendon was used, prepared in the same way. I formerly had trouble with all animal ligatures hardened by chromic acid, formaldehyde, cumol, or any other process. They did not soften and were not absorbed, even if perfectly sterile, and it has happened to me repeatedly, six weeks or three months after the operation, that there would occur a cold or sterile abscess simply from dead ligatures; and my constant endeavor has been to get ligatures which would hold the blood vessels for forty-eight hours and then soften and break down, so that they would be absorbed in a week or ten days, or, to speak more to the point, that they would disappear before the patient left the hospital and passed out of my hands. I am now speaking about the intra-abdominal work, the tying of pedicles and blood vessels. For all the work within the abdomen which was to be closed only catgut was used. No. 3 was employed, except in cases of appendicitis or other intestinal work, where the finer No. 1 was used. The abdominal incision was closed in layers with catgut; the No. 1 was used to sew the peritoneum, the No. 3 for fascia and muscle, and for subcutaneous suture again No. 1. This refers to all clean aseptic abdominal surgery, such as operations for appendicitis during the interval, hernia, fibroid tumor. In septic cases—that is, pus tubes, ruptured appendices—and in all malignant growths, or in tubercular diseases, or in exploratory operations, the *en masse* figure-of-eight silkworm-gut suture was applied.

*Place of Operation.*—Of these operations 196 were operated upon at Harper Hospital and 20 cases at St. Mary's. The rest were operated upon in hospitals in different parts of the country and Canada, except 5 cases which were operated upon at their homes because they could not be moved. As my experience increases I am convinced that the only place for abdominal surgery is in a well-equipped hospital, where you have the patients under your own care and can watch them yourself and can manage their after-treatment. In spite of our best care secondary hemorrhage sometimes occurs. The experienced eye quickly discovers it and opens the abdomen. The subcutaneous, venous, and arterial saline transfusion can be quickly, promptly, and safely carried out in a hospital, not to mention rectal feeding, proper variety of diet, careful watching of the kidney, stomach, and bowels, etc. All these con-

tribute to success and lessen our mortality and save lives ; all can be best carried out in the hospital. The patient in the country, who is five to fifteen miles from the family physician, even with a well-trained nurse, has her chances for recovery gravely diminished, and I only operate at the patient's house in desperate emergencies. If people wish it, it is astonishing how easily you can get them to the train on a stretcher, and in an ambulance from the depot to the hospital in a very few hours. I have had cases of Cesarean section where women were in full labor, or cases of ectopic gestation or ruptured appendices, etc., brought two hundred miles or more with perfect safety and with very little discomfort. They can reach me as quickly as I can go to them, and when I have them here I can watch them day and night and my mind is at ease. In the city and within a radius which can be reached by the ambulance, I have never operated on a patient at her home. The prejudice against the hospital is disappearing and people now go there of their own free will.

*Appendicitis.*—The medical profession, and even laymen, have now recognized the importance of looking upon inflammation of the appendix as a surgical disease ; that is, that a surgeon should be called in consultation to watch the case with the family physician and, if necessary, operate.

During the year I have had altogether 33 cases with but 2 deaths. They varied in age from 6 to 56 years, and were evenly divided among the sexes.

The first to die was J. M., age 20, a dental student. He had had an attack eighteen months previously, with the formation of a large abscess, which was opened, and the appendix very properly not removed on account of the low state of the patient. He was afterward repeatedly urged to have the appendix removed. Finally, after he was taken with an attack of acute peritonitis, which in the course of twenty-four hours became most marked in the right side, I was called and urged immediate operation, but another forty-eight hours were lost before he was taken to St. Mary's Hospital, where I operated. On opening the abdomen I found that gas escaped from a pinhole opening in one spot, and in a few minutes fecal matter oozed out. I closed it with a double Lembert suture, and a couple of other spots without openings were treated in the same manner. The appendix was walled in, removed, a gauze drain inserted, and the abdomen closed. The vomiting which had been present before the operation continued, and although the

temperature went down from 103° to 99°, the pulse continued to increase in frequency, and he died on the third day.

The second case was Mrs. T. A. J., age 35, who had had a number of attacks of appendicitis and was finally taken with vomiting and continued pains in the region of the appendix. She was greatly emaciated, and although I kept her in the hospital for several days, thinking that I might be able to stop the vomiting, I finally decided that it must be reflex and due to the appendix or adhesions around the cecum, perhaps obstructing the intestine, and the best thing would be an operation. The appendix was found adherent, but still did not seem much diseased. It was quickly removed. The whole operation took less than fifteen minutes. The operation had no effect on the stomach; she continued to vomit as before, being unable to retain a particle of food. Becoming very weak, she died in six days. I was unable to get a postmortem, which I very much desired, as I was convinced that the diagnosis was wrong and that there must have been some organic disease of the stomach.

*Cysts of the Broad Ligament.*—Two cases. One had undergone suppuration with extensive adhesions. The sac was stitched to the abdominal incision and drained. It contained about two quarts. In the other case the cyst contained about one and a half pints of fluid and was easily enucleated by splitting up the broad ligament. Both recovered.

*Exploratory Celiotomy.*—This included 13 cases varying from 41 to 72 years in age. They were undertaken for the purpose of making a diagnosis and, if possible, operating and removing the diseased condition, but they all proved malignant or could not be remedied.

*Extrauterine Pregnancy.*—This case was interesting, as pregnancy existed in the uterus at the same time. The diagnosis of normal pregnancy was made, but on account of the pain and the elevation of temperature the diagnosis of pus tubes was made also. Unfortunately five days after the operation she aborted.

*Gall Stones.*—Two cases. In the first there was one large stone. In the second there were twenty-three. The latter case was complicated by fever. The case was carefully examined, and I supposed there was suppuration in the gall bladder, but there was not. The woman recovered from the operation, but developed pneumonia and died three weeks afterward. She had gall stones, but evidently they had absolutely nothing to do with her condition.

*Hernia*.—Nine cases: 2 umbilical, 2 inguinal, 2 ventral, 2 femoral, and 1 inguinal during pregnancy. Mrs. W. H., age 28, mother of two children; pregnant five and a half months. She had omental hernia for years, and being taken with severe vomiting it was attributed to the pregnancy. I was called on the fifth day and diagnosed hernia. As the symptoms were not dangerous I agreed to twenty-four hours' delay, when she was taken to the hospital and operated on. The intestine was twisted and the opening large, but no severe strangulation had occurred. Recovery uneventful. Both cases of ventral hernia were after operations by myself. Hernia is not common after abdominal section when the incision is carefully closed.

*Intestinal Surgery*.—Nine cases: in one, removal of the cecum by the aid of the Murphy button; in another, gastroenterostomy for cancer of the pylorus. Both these cases recovered. Two other cases were wonderfully alike, one in a maid 45 years old, the other in an old lady aged 68. In both of these there had been some little bowel trouble with constipation, but nothing marked. They had lost flesh for several months. Suddenly they developed complete obstruction characterized by vomiting of fecal matter. This condition had existed for five days when I saw them. Exploratory celiotomy showed in each a constriction of the large intestine (in one of the descending, in the other of the ascending colon); both malignant. I removed eight inches in each case and inserted a Murphy button. Both patients died twenty-four hours afterward from shock. These cases show how a malignant growth can gradually diminish the lumen of the bowel without producing marked symptoms, until suddenly the limit is reached and symptoms of acute obstruction appear.

Mr. E. O., age 55. Was struck by the tongue of a wagon in the abdomen. He did not mind it much at the time, but more and more pain developed and inflammation set in. They sent for his son, who was a physician. The latter called me. Some vomiting. Symptoms of obstruction. I advised exploratory operation. Opening the abdomen, I found fecal matter and two tears in the intestine, each about half an inch long. These were closed with a double row of Lembert sutures and the abdomen drained. The man gradually sank, and died of septic peritonitis.

*Hysterectomy (abdominal)*.—Seventeen cases. Patients aged 31 to 58. Two were total extirpation, and in 15 the cervix was left as in the Baer operation. The latter form of



operation I prefer, because it can be done quicker and it leaves a better vagina. When the cervix is lacerated, however, or there is degeneration of the mucosa or suspicion of malignancy, then I make use of the total extirpation. Some of these were complicated with pus tubes, with diseased ovaries or hydrosalpinx and more or less adhesions. One death resulted. Mrs. E. B., age 40. A simple case. Continued vomiting after the operation and died on the third day, evidently from acute sepsis, although the temperature only went a little above 100°.

*Hysterectomy (vaginal).*—Forty-seven cases, with 4 deaths: 20 cases of cancer, 7 fibroids, 11 cases of pus tubes, and 9 of chronic pelvic inflammation. The cancer cases were of all kinds, some in the very earliest stages, where the diagnosis was made by the microscope from curettings, others where the disease was far advanced. The fibroids were small, as I prefer to remove the large ones which are above the pelvic brim by abdominal section. The pus tubes were cases of double pus tubes with diseased uterus. By chronic pelvic inflammation I mean inflammation of the tubes, ovaries, and uterus, with adhesions, endometritis, lacerations of the cervix, retroversion or retroflexion of the uterus—in short, those complicated cases of inflammation of all or most of the pelvic organs which make a woman an invalid, and which have been subject to all the usual treatment without benefit. In these cases you operate three or four times, and the end is that you have removed all the pelvic organs, one at a time. I have come to the conclusion that in these cases the best and promptest remedy is complete removal of the pelvic organs. It is hardly necessary to state that all these cases were in women past the child-bearing age, near the menopause. In all young women I believe in the most extreme conservatism; that we should save at least one ovary, or even a half of one if that is the best we can do.

Two of the deaths were from pus tubes, one in a cancer very far advanced and the other an easy case of multiple fibroid. They all died of septic peritonitis. In spite of our continual efforts to prevent it, we occasionally have sepsis. If you have five or ten cases in one week, as you sometimes have, before you find out that anything is wrong a dozen cases are affected. Sometimes you will find out the cause of the trouble and sometimes not. Perhaps it is yourself, perhaps your assistants or your nurses, and sometimes from unknown causes. You

double your efforts, cease to operate for a week or two, but the mischief is done.

*Myomectomy*.—Five cases, no deaths. In all young women effort was made to preserve the reproductive organs by performing myomectomy. In two of these cases the left ovary and tube and part of the uterus were taken out and the right tube and ovary preserved. Nine tumors were removed in a young woman of 30. One case was pregnant four and one-half months; three fibroids were removed, as they would have probably interfered with labor. The woman went on to full term.

*Nephrectomy*.—Four cases. Two were very large hydro-nephroses, one was tubercular, and one was suppurating containing a large stone. One of these cases, in a young woman aged 24, had well-marked mitral regurgitation.

*Oöphorectomy (single)*.—Sixteen cases, 9 of the left ovary and 7 of the right. These all recovered and were operated upon for chronic inflammation, pain, dysmenorrhea, etc. In 6 of the cases on the right side there were adhesions to the appendix, and in these cases the appendix was also removed. In fact, I have had doubts in my mind whether in some cases the trouble was not entirely, or at least originally, in the appendix, and for safety's sake I also removed the appendix. Some of the cases were cystic, and I might have placed them under the column of ovariectomies, but I only placed those cases under the head of the latter which were large (three inches in diameter and upward).

Some of the cases had been previously subjected to trachelorrhaphy by myself or others without benefit. These cases show us especially that we must not promise *too much* to our patients when sewing up a tear in the cervix. They will not recover if they have a diseased tube and ovary, until it is removed.

*Oöphorectomies (double)*.—Seven cases. These were extreme cases, near the change of life, where pain had made life unbearable, with one exception, the case of a young girl aged 16, with hystero-epileptic fits occurring every month, and who was weak-minded. As she came from Colorado, I have not been able to learn the final outcome or the result on the nervous condition. One patient two hours after operation suddenly died from syncope. I was afterward informed that she was subject to these spells and in a number of cases had been revived with great difficulty.

*Oöphorectomies and Ventral Fixation.*—Sixteen cases, 1 death. In 9 cases the left ovary and in 7 the right was involved. Simple cases of retroversion of the uterus, which can be remedied by pessaries, tampons, or relieved by Alexander's operation, etc., I rarely see. They are very properly taken care of by the general practitioner. The cases I get are those where there has been chronic inflammation with adhesions, which have been subject to the usual course of treatment—electricity, massage, etc.—for years without avail. They require removal of the tubes and ovaries. The adhesions must be broken up and the uterus fixed anteriorly. In a few cases you can do this through the vagina, but as a rule the history shows that severe complications exist. Be on the safe side. Better open the abdomen and sew the stump to the lower angle of the wound.

*Ovariectomies.*—Twenty-one cases without a death. The youngest was a girl of 16 and the oldest 72. In 11 double ovariectomy was performed. In 8 the tumor developed from the left ovary, in 2 from the right. All were multilocular.

*Pus Tubes.*—Twenty-one cases, 5 deaths. Here is our great mortality, as always. Most of these were very desperate cases. Weak and run down, they had gone the rounds, suffering from sepsis. Some of these I first drained through the vagina for the purpose of letting them recover partly; but in some cases it was impossible to drain, as the tubes were up high, hard to reach, and the abdomen had to be opened.

It is very difficult to decide what to do in some of these cases—what is best for the patient. Sometimes by keeping them quiet, putting them under a course of treatment, they will improve. In other cases, however, they have been subjected to medical treatment for months and have gradually lost ground. If you wait in the hope of building them up they continue to fail, and die. If you operate on them when a mere skeleton, with thin blood, high temperature, and a weak and rapid pulse, you take desperate chances and a great many will die. These cases give me more trouble than any others. Still I think we should give them the only chance they have and operate, preparing them in the best possible way. In some I have flushed the abdomen with large quantities of saline solution. Some I have drained, usually with a glass drain, sometimes with glass and gauze. Four of the drained cases died from sepsis or from shock, and one remarkable case died

from apoplexy on the seventh day. The diagnosis was verified by the postmortem. The abdomen was in good condition and had apparently nothing to do with death.

I have gradually also come to the point where I drain very little. I take greater pains to prevent contamination of the intestines and abdominal cavity, and if some pus escapes I carefully remove it by sponging, but where large quantities escape I think thorough flushing is valuable, but at present I avoid flushing and the drainage tube. Though the deaths all occurred in cases that were drained, I do not want to blame the drainage tube. I drain only in the very worst cases, and they would probably have died without drainage.

*Ruptured Uterus during Labor.*—One case with death, already reported in this JOURNAL.

*Vaginal Fixation.*—I found only 2 cases during the year which I considered proper for the operation of Mackenrodt or Dührssen. Both made a good recovery.

*Vaginal Celiotomy.*—Two cases only, one by the anterior method and one by the posterior. In each case only one ovary was diseased. It is certainly an excellent method in *selected* cases.

*After-treatment.*—In nearly all cases I inject into the rectum two quarts of saline solution, or as much as I can get it to retain. A pint usually is lost. In very weak, anemic patients I use subcutaneous saline infusion, one pint beneath each breast, during the operation. One or two doses of morphine, usually the first and second night. The bowels I move on the second or third day with Rochelle salt. Liquid food for three days, soft diet for a week, and after ten days almost anything. From the tenth to the twelfth day they sit up in bed, gradually move around a little, and on the fifteenth to the twenty-first day, with few exceptions, leave the hospital. Very little medicine is given—strychnine immediately after the operation in case of shock; iron and tonics when indicated. Special attention, however, is paid to the stomach, and nitro-muriatic acid, pepsin, taka-diastase, and so on, are used freely. To build up the assimilating powers of the system seems necessary after an operation or long-continued sickness. Nature will do the rest.

*Résumé.*—Total number of cases, 224; deaths, 18—that is, 8 per cent. Too high; but by giving every patient a chance, and not turning the desperate ones over to your assistant, it is almost impossible to reduce this much.



# TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

*Meeting of March 16, 1899.*

RICHARD C. NORRIS, M.D., *in the Chair.*

DR. WILLIAM R. PRYOR, of New York, read a paper entitled

VAGINAL ABLATION IN PELVIC INFLAMMATIONS.<sup>1</sup>

DR. J. M. BALDY read a paper entitled

THE SURGICAL TREATMENT OF PELVIC INFLAMMATORY  
LESIONS BY ABDOMINAL SECTION.<sup>2</sup>

DR. B. F. BAER.—I was very much interested in the paper read by our friend and guest, Dr. Pryor, and also in that by our Fellow, Dr. Baldy. Dr. Pryor has made the picture very beautiful—one hundred consecutive hysterectomies, without a death, by vaginal section. Dr. Baldy has made his report by the abdominal route almost equally alluring in low mortality and smooth convalescence. To one without experience, either way might appear smooth and easy; but to me it seems that both sides are a little overdrawn and each of the essayists a trifle oversanguine to make his own side the stronger.

In one important particular I am not in accord with either, and that is in the position which both take that after the appendages have been removed the uterus becomes a useless organ and should therefore be sacrificed. I am sure this is the wrong and narrow view of this question. The uterus is of both anatomical and physiological value, even though it is no longer required to perform the functions of menstruation and gestation, and we have no right to assume that it is not. How do I know that it is of value? By *a priori* reasoning and by observation and comparison. My experience has extended over a good many years, and I have operated upon a large number of cases where it has been necessary to remove both appendages, and I have followed the practice of leaving the healthy, or at least non-malignant, uterus in nearly all instances. This has enabled me to observe the after-history of many cases and to learn that the uterus has given no after-trouble in the vast majority. I believe, therefore, I am justified in the statement that endometritis is not frequently persistent in these cases, that the endometrium becomes spontaneously

<sup>1</sup> See original article, p. 584.

<sup>2</sup> See original article, p. 597.

healthy as a rule, and that very few—not more than five per cent—require hysterectomy afterward for incurable disease. But granted that some cases do require after-treatment for lingering endometrial disease, and that even in *ten* per cent it might be necessary to remove the uterus later, shall we therefore subject the other ninety to a more dangerous operation and to the unnecessary loss of an organ? It seems to me that this would be a violation of the sound surgical law, long ago established, that organs and tissues shall be preserved whenever possible.

It has been said that the preservation of the uterus is a mere matter of sentiment, and perhaps sentiment has something to do with it. I hope it has, for a little sentiment is good.

If, however, I should decide to remove the uterus with the appendages in the disease under consideration—viz., chronic tubo-ovarian inflammatory conditions, with or without pus—I believe I would favor the vaginal route. Why? Well, I think there is a little less danger, for one thing, and, second, if the pathological process is contained within the pelvis it can be more easily reached and completely removed.

I favor the vaginal route a little more than formerly for conservative work on the appendages. I have thus operated seven times since last July for the removal of pus and other collections in the tubes and ovaries. This is unusual for me, as I have been and still am strongly in favor of the abdominal route in most cases—in all where the tumors are much above the pelvic brim. I selected the vaginal section in these cases mainly for the reason that the patients were in a weak condition, tumors in a low situation, and as a temporary expedient to save life, intending to complete the operation later by abdominal section should it be required. Fortunately, in only one of these cases has it been necessary to make a second operation; in all the others the recovery has been apparently perfect, and the patients are greatly pleased that this result was obtained without the necessity of the abdominal section.

There is one right way for each individual case, and the broad man with good judgment will find himself sometimes operating by one route and sometimes by the other.

My reasons for preferring the abdominal route in most cases are: I have a better command of the parts to be operated upon and can manage bowel and other adhesions better; I can, if I conclude to remove the uterus also, do the supravaginal operation and thus save the cervix, for the important anatomical reason which I stated in my original paper on supravaginal hysterectomy; and, lastly, I can close the incision without drainage, a principle which I regard of the first importance.

I have performed vaginal hysterectomy many times, mainly for malignant disease, but have preferred the ligature to the clamp. This technique described by Dr. Pryor seems to be an improvement, and I shall be glad to learn more of it.

DR. BROOKS H. WELLS, of New York.—Some years ago when Dr. Pryor began to do these operations at the Polyclinic

I thought he was allowing his enthusiasm to run away with his judgment, and I think we had two or three little tilts in the matter. Personally I had gained what I considered very satisfactory results from the abdominal route, and I was disinclined to believe that Dr. Pryor and certain other gentlemen who operated through the vagina got better results. For a long time I have been watching the women operated upon by this method, during the convalescence, and I do not think that Dr. Pryor has exaggerated when he speaks of the great smoothness of the convalescence and the freedom from pain and disagreeable symptoms. So that I have come to believe now that when you have extensive pelvic suppuration with pus on both sides of the uterus, and dense adhesions, where it is also probably necessary to remove the uterus, you can get better results from below than through the abdominal section. It takes as much skill and experience to do a vaginal operation as to do an abdominal operation; but when you have gained that confidence and skill you certainly get very beautiful results. Ten days ago I had a case come into the Polyclinic which is so typically illustrative of the benefits of this operation that I will mention it here. The woman had had a very badly managed abortion. She became septic and was in that condition for six weeks. She was pale, her pulse was rapid (120 to 135) and temperature irregular ( $97^{\circ}$  to  $104^{\circ}$ ). The pelvis was filled with a large, hard mass and the uterus fixed. I concluded that it was a proper case for the vaginal operation. I found the cavity of the pelvis a mass of agglutinated abscesses. Ovaries, tubes, and broad ligaments were distended with pus. After the operation the patient was put to bed and her temperature fell to normal within a few hours. She has complained of no pain, and the temperature has remained between normal and  $99\frac{1}{2}^{\circ}$ . The pulse dropped to between 70 and 80 and has remained so. The ultimate result is an important consideration. It has been said that when the uterus is taken away the vagina becomes shortened, but this difficulty is obviated almost entirely by packing the vagina carefully with sterile iodoform gauze during the convalescence.

I think part of these good results are due to certain little differences in the technique which Dr. Pryor has originated for himself, and which make his operation decidedly different from vaginal sections which I have seen by others both on this side and from Europe.

DR. JOHN B. DEEVER.—While I have been much pleased with the way Dr. Pryor has presented the subject of his paper, I am not able to accept the position he takes. How one skilled in abdominal technique, who knows how to properly dispose of sterile gauze and thus effectually guard the peritoneal cavity and those of the abdominal viscera not involved in the lesion against infection, in dealing with pelvic or other intra-abdominal inflammatory affections, can argue in favor of the vaginal versus the abdominal route, I am at a loss to understand.

To deal radically and safely with inflammatory conditions of

the pelvis, such as the reader of the paper has included, by the vaginal route under all circumstances, is to my mind impossible. It must be granted that in this class of operations, where it is impossible to bring the parts into full view, the sense of touch is to be entirely depended upon. Further, that one can be sure that adhesions, masses of indurate, foci of infection, etc., have not been left behind, is impossible.

It must be conceded that the surgeon's sense of touch is a *sine qua non* in the performance of any, or at least most, operations, and particularly in those practised and advocated by Dr. Pryor. In other words, the surgeon must have eyes in the ends of his fingers which should be neither myopic nor hypermetropic. It must also be conceded that if these eyes are in the ends of anatomical fingers, and the opportunity be given, such as is afforded by the abdominal route, to guide the fingers by the orbital eyes, surer, more radical, and safer work can be accomplished.

The risk of doing more damage from tearing bowel, or injuring it to the extent of favoring the formation of a fecal fistula, or damaging the peritoneal attachment of bowel with the consequent risk of necrosis; leaving adhesions which in themselves are capable of making the patient's life unbearable, to say nothing of the risk the presence of adhesions exposes the patient to from acute or chronic intestinal obstruction; the danger of tearing blood vessels and having to compete with hemorrhage which it may be impossible to effectually control, the surgeon being handicapped for want of proper working room; risks of damaging the ureters, of permanent injury to the bladder—in short, of making the cure worse, as it were, than the disease for which the operation has been done—should, to my mind, influence the operator against the vaginal route.

It must be granted that the vaginal canal cannot be rendered as sterile as can the abdominal walls, therefore the patient whose pelvic cavity is opened by the vaginal route is at once exposed to a minimum amount of risk from infection, which is not so when the cavity is opened by way of an incision through the anterior abdominal wall.

By the abdominal route opportunity is offered for careful inspection and gentle digital palpation, in this wise determining the condition with which the surgeon has to deal. If the lesion be one of abscess and accessible for opening through the vagina or above Poupart's ligament, the patient's condition not warranting interference other than incision and drainage, the abdominal wound is closed and drainage established.

The lesion having been located and the patient's condition warranting radical interference, the Trendelenburg position is next made, and the peritoneal cavity and abdominal viscera not involved in the lesion thoroughly and effectually protected against any possible infection by the disposition of sterile gauze. It will be noted that I make no mention of gauze pads or flat sponges, either of which I consider inadequate, as they



cannot be made to engage in crevices and small places as can loose gauze. The peritoneal cavity being thoroughly protected, if the lesion is the site of a purulent collection, the table is dropped and the patient placed in a horizontal position, when the enucleation is accomplished. In this wise the operator is absolutely master of the situation, capable of dealing with all conditions, be they in the shape of lesions or complications consequent upon removal of the lesion. The class of cases to which I would delegate the vaginal route would be purulent collections or collections of blood accessible through the vaginal vault, the patient being either *in extremis* or not in a condition to warrant radical abdominal operation. Under such circumstances a makeshift operation will better pave the way for a subsequent ideal procedure, granting, of course, that the latter be warranted.

I have been very much impressed with the manner in which Dr. Pryor has described his method of operating by the vaginal route, but I do not think I could get my hand as far into the vagina as the doctor indicates.

I grant that Dr. Pryor is correct in many of his points. We know, from our knowledge of the peritoneum, that we can do operations in the iliac fossa and right hypochondriac region such as are done upon the appendix and the gall bladder, but when we trespass upon the small intestine we must remember that the danger from infection is greater.

The question of hernia appeals to me. I have operated upon many professional men and nurses whom I meet every day, and I do not hesitate to ask if there has been hernia. I will not question the propriety of suturing the abdominal walls by tier suture. If my methods are good I should be satisfied.

As to the question of shock, I see shock, but not from keeping my patients on the table a great length of time nor from loss of blood. I see shock because I am dealing with that condition in which the resistant powers are so reduced by the disease that operation cannot help but be followed by depression.

With reference to the abdominal scar, my patients, like those of Dr. Baldy, do not object to the scar.

DR. CHARLES P. NOBLE.—I must confess my admiration for Dr. Pryor's results. We have all known for a long while that Dr. Pryor was very enthusiastic in this field and very successful, and he is certainly to be congratulated upon being able to present 100 cases without any deaths. From the standpoint of relative mortality results he must certainly have the benefit of the argument, for no one can improve on perfection.

From the standpoint of experience, I think very few of us in Philadelphia are capable of discussing Dr. Pryor's paper, for the reason that our experience in that line is small.

There are various phases of the work, however, which never appeal to me, because they are based on principles which we should get away from. These two principles are the use of the

old method of compressing tissues to control bleeding, and the necessity of using drainage to prevent patients from dying of peritonitis. It must be granted that Dr. Pryor gets around both of these difficulties with great success, but that is not the experience with the generality of operators. The generality of operators have a certain number of cases of septic peritonitis, and a certain number in which there are very foul discharges from sloughing stumps. And when these operations are done in hospitals the risk is run of infecting everybody else in the hospital from these conditions resulting from the vaginal hysterectomy with the clamp and drain methods. These are the facts with reference to vaginal hysterectomy which have always prevented me from doing it as a routine operation. Of course, like other surgeons, I have done a certain number of vaginal hysterectomies, perhaps fifty, but the more I do it the less I like it.

While we are not discussing cancer to-night, I would like to say that there are other surgeons who do vaginal hysterectomy without using the crushing method of controlling hemorrhages and without using gauze. Olshausen has done 116 hysterectomies, with only one death, without clamp or gauze—the fatal case suffered from pyemia before operation.

In other cases we can do vaginal operations without these two principles of clamp and gauze. I operate *per vaginam* in a certain class of inflammatory cases, and they have been touched upon lightly by Dr. Baldy and other speakers; that is, those where we have patients, exceedingly ill, upon whom you do not dare do a major operation. In these cases, whenever it is proper, I simply drain through the vagina. I have also had experience in operating in puerperal cases for suppuration with drainage. I take issue with the gentlemen who believe it is necessary to do radical operations in the majority of these cases of pelvic suppuration in the puerperal state. My results have been eminently satisfactory. The patients not only made good recoveries, but subsequent operations have been the exception. Six children have been born among these cases, which proves a good argument. I believe we should not be extreme in these cases, as a rule, but only when there is some very positive indication. I think a freshly infected uterus or broad ligament can recover if you drain away the pus. But laying aside this class of cases and a class of cases of suppurating hematoceles, and perhaps one other class of cases—patients who have pus tubes filling up the pelvis, which cases are almost always broken down (and which are better drained through the vagina)—my experience closely agrees with Dr. Baldy. That is, if we lay aside these cases I have been discussing, the abdominal route is to be preferred. The mortality of the abdominal operation in the remaining cases is about zero, and the morbidity, I am certain, is less than by the vaginal route. What is perhaps of equal importance, a truer conservatism can be practised and fewer ovaries unnecessarily sacrificed. This is the keynote.

Dr. Pryor has met with only one case in which the small intestine was entangled with pus tubes. Others have not had his exemption. There is also the complication of appendicitis and intestinal agglutination. These are cases which can only be dealt with satisfactorily through the abdomen, so I believe this route offers a great many advantages over the vaginal.

I agree with Dr. Baldy that we seldom meet with shock. So far as my results from shock are concerned, I am sure it figures to a very slight degree in my mortality statistics.

So far as hernia is concerned, leaving out the class of cases in which we must drain (in my experience about three per cent), the question of hernia hardly enters into abdominal surgery if one will properly suture the abdomen. My own results show that less than one per cent of the cases have had hernia.

With reference to the abdominal scar, if the wound is sewed up nicely we do not have a disfiguring scar. I have heard but one woman refer to the scar, and she had seen the scar of a wound made by a surgeon who uses a "crowbar" for a needle and ties tightly his interrupted sutures. Such a method gives a "gridiron" scar which is repulsive in appearance. The tier suture, with closure of the skin wound by the intracuticular suture, obviates this objection.

Finally, I prefer the abdominal route because I believe it gives an equally low if not lower mortality, a lesser morbidity, because it insures a greater conservatism in saving ovaries, and, last, because it enables us to deal with intestinal and visceral complications in an intelligent manner.

DR. JOHN C. DA COSTA.—Dr. Pryor's paper was different from what I had expected. I had hoped to hear him say something not only about the ablation of the uterus, but with regard to the treatment of all pelvic inflammatory conditions, and to hear something also about the conservative treatment of these cases. He has described his operation so beautifully that he would make us feel it is the only operation to be done, and if we all possessed the skill of Dr. Pryor in that operation it probably would be our choice. But we have to think of what the average operator is capable. I do not think the majority of men could do as many operations as Dr. Pryor with the same results. I believe the ablation of the uterus for cancer a good operation, but I do not go as far as some gentlemen and want to take out everything in the pelvis. I am a conservative man and believe in preserving all of a woman's organs that one can, and do not think that because the ovaries or tubes, or both, are affected it is necessary to remove all the pelvic organs.

Like Dr. Baldy and Dr. Baer, I want to see what I am doing, and in these cases where there are dense adhesions can hardly conceive it possible to remove uterus, tubes, and ovaries without doing damage to the intestines. In a great many of these cases, after removal of tubes and ovaries, the inflamed

uteri are capable of becoming perfectly well. If there are foci of inflammation in the uterus they can be cut out and a good recovery will ensue. I believe the uterus is of some use after the tubes and ovaries are removed, and agree with Dr. Baer that if the cervix is of some use the uterus is of more use. The gynecologist's plan should be to save the uterus whenever he can.

Regarding scar, I am not as fortunate as Dr. Baldy, for I have had one single case object to abdominal operation on account of the scar. Hernia need not now be considered a very serious objection to abdominal operation. Fifteen years ago, when we were always careful to cut through the linea alba, we were more likely to have hernia. To-day, when we cut through muscle, hernias are rare.

DR. BEYEA.—This method devised by Dr. Pryor I know nothing about, as at the University and Gynecian Hospitals the operations which I have done myself have been strictly abdominal, and the objection of departing from the abdominal route has been greatly on account of conservatism. I think this is one of the important factors in doing the abdominal method, because I have frequently seen marked shortening of the vagina, atrophic changes in the vagina; the uterus being removed, the secretion in the vagina is destroyed. The statistics of the University and Gynecian Hospitals show 178 cases in the service of Dr. Penrose which have been operated upon since 1894. These included inflammatory cases associated with pus and extensive adhesions and tubercular abscesses. Among these 178 cases there were 102 operations for the removal of the body of the uterus. Among the 178 cases there were 5 deaths and 2 herniæ. A number of these cases were drained, and I agree with Dr. Baldy, Dr. Deaver, and others who advise the abdominal route as being the better one.

DR. PRYOR.—I think a great deal that has been said has been spoken from a misapprehension of my position. As to the shock in the two operations, a woman will have as much shock from the loss of a quart of blood from the vagina as from the abdomen. The absence of shock in vaginal section is due to two things: 1. The patient is never completely under narcosis, the woman recovering consciousness when she is about ready to go back to bed. 2. Then, again, the diminished shock is due to the absence of handling of small intestines. I used to see the intestines come into the vagina until I used the Trendelenburg position sufficiently to relieve the descent.

Dr. Baldy has said that certain things cannot be done through the vagina that can be done through the abdomen. In my vaginal work I find you can do through the vagina nearly all the things that ought to be done. When we had a large mass of intestines to be gone through in laparotomy we got large denuded surfaces that bothered us. In the vaginal route you do not see that at all. When I do have a knuckle



of small gut adherent to a piece of uterus I can free it with my fingers perfectly well.

As to the abdominal scar, I do not suppose the ladies of Philadelphia object to abdominal scars or desire them any more than other women do.

As to the time in bed after operation, I do not wish my patients to get out as advertising media in eight days. A woman who has been brought to the position of requiring such an operation should stay in bed two and a half to three weeks. With reference to the number of cases drained, of which Dr. Baldy speaks, he could not help draining, but they are not well women to-day. It is not a question of mortality, it is a question of morbidity. Lawson Tait lost no cases, but think of the morbidity!

I am glad Dr. Baer is on the fence. When you adopt the vaginal route you will find that you can treat your stumps extraperitoneally and you will have no forceps cutting gut.

It is not all plain sailing. The danger of streptococcic infection is exactly the same through the vagina as through the abdomen.

I have had three cases of bladder wound by my finger. I have had one case of ileus, the case in which I began the operation through the abdomen and, the light failing, finished through the vagina. I opened the abdomen and finished the operation through the vagina. The woman recovered on the starvation plan.

Dr. Deaver assumes that I cannot see what I am doing. This is perfectly right with reference to the old operation in which the uterus was left. But when you split the uterus you can swing it out and see all that is on the inside. As to the sterilization of the vagina, I am very particular to sterilize it. For two or three days before the operation it is treated exactly as you gentlemen do the abdomen.

There is no line of work that militates against the surgical mind as much as this. You have the discharges and the operation is very disagreeable, but your cases get well.

I have gone about this work in a scientific way. I have proved the operations on the cadaver after going through every step of the work.

I think the day for puerperal hysterectomy has gone by, except in the very rare cases where you can make a diagnosis of thrombo-phlebitis. In ordinary puerperal fever curettage and packing the uterus with antiseptic gauze, I think, will give the best results.

Dr. Da Costa, you treated me so courteously that I can but thank you. I will say this, however, that I do not believe the general surgeon is in a position to say he can sever five anatomical layers more easily than two. I do not think he can do that as easily through the abdomen as through the pelvis. He can put on three or four clamps more easily than he can put on fifty ligatures.

Dr. Beyea, I note from your statistics that you take the vaginal route for your bad cases, and for the better cases you use the abdominal.

Gentlemen, when you say that certain work cannot be done through the vagina, I simply want to call your attention to the results.

An interesting point in these cases is the effect upon the voice. I have had a number of opera singers upon whom the operation has been done, and I have recently heard from two of them, who tell me that the voice has returned.

DR. BALDY.—There are one or two points brought out in the discussion to which I would refer: (1) With reference to the cases Dr. Pryor spoke of as sclerosis, I classified all my cases as either pyosalpinx or salpingitis. Dr. Pryor speaks of these as sclerosis and of these being the worst cases he had to deal with. I speak of this same class as salpingitis; and it is also my experience that, as a rule, they are more difficult operations than those in which pus is present. The other point is in regard to what Dr. Baer and others say about hysterectomies. In a considerable percentage of the cases included in my paper hysterectomy was *not* performed, as will be seen by reference to the list. Again, consider that all but the worst cases are excluded from the list (those in whom hysterectomy was not necessary). I can therefore hardly with justice be accused of always removing the uterus.

On the other hand, my belief is that Dr. Baer's and other arguments in this matter are purely sentimental, and that the gentlemen who always remove the uterus when both ovaries must be removed have far more in favor of their position than the reverse.

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## TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of December 2, 1898.*

*The President, T. C. SMITH, M.D., in the Chair.*

DR. J. WESLEY BOVÉE presented

### TWO FALLOPIAN TUBES

removed from one woman, in one of which there were two independent pus cavities and in the other a cavity containing pus and one containing blood. They were removed by celiotomy. In removal of the tube a pus sac at its fimbriated extremity was ruptured, and its wall was found to consist of the outer inch of the tube, some inflammatory structure, and a loop of

small intestine; the remainder of the tube canal was dilated and contained two ounces of dark blood. An additional longitudinal section of the tube showed between the two sacs a complete obliteration. The left was removed without rupture, and was also found to have two compartments filled with pus, an obliteration of the tube canal being easily seen between them. The other sac was made up largely of inflammatory substance, all but the extremity of the tube. It extended back somewhat along the posterior surface of the tube. The hematosalpinx was thought to have been hemorrhage from the wall of the hyperplastic tube. As no microscopical examination of the blood was made, its admixture with a small proportion of pus remained in doubt. In this case was also demonstrated the marked stimulating effect of normal salt solution on the kidney, as in the abdominal cavity were left two quarts of it, and the excretion of urine was for the first day thirty-seven and a half ounces, and twenty-four and a half for the second.

DR. JOSEPH TABER JOHNSON showed a

#### FIBROID TUMOR OF THE UTERUS,

removed five days ago, which had grown in the last eight months, the patient being under 30 years of age. He also showed a fibroid removed from a woman 60 years of age; also a multilocular cyst, ovarian, from a woman 63 years of age.

DR. J. WESLEY BOVÉE said, from the rapid growth of Dr. Johnson's first specimen, he thought it might be a sarcoma. The doctor did right to remove the uterus, though the tendency now is to save as much of the genital organs as possible. He cited the case of a patient 19 years of age who had double pyosalpinx, which he thought to be of gonorrheal origin. He did not wish to remove the tubes of so young a woman, so he punctured through the vagina. At a later date he may do a laparotomy and save enough of the organs for child-bearing.

DR. S. S. ADAMS said Dr. Bovée lays stress on the amount of urine passed, but says nothing about the amount of urea. It would be interesting to know the amount of urea passed in these cases.

DR. JOSEPH TABER JOHNSON said the great surgeon in gynecology *has been* the man who removed the most organs; *now* it is the man who saves the most. Even the part of a crippled ovary is saved. A large amount of work of this kind is being done in the different cities, and done successfully.

DR. J. WESLEY BOVÉE said Dr. Adams is right as to the mere passing of a quantity of urine. The salt solution is used to increase the amount of urea. Ordinarily he is satisfied when he gets the specific gravity. At the Columbia Hospital the specific gravity is taken three times a day after laparotomy. Having the specific gravity and the quantity of urine, we may get a good idea about the amount of urea. Urea may not be as harmful as one might suppose. Some

investigators think it may be some other chemical that does the harm.

The paper of the evening was read by DR. SAMUEL S. ADAMS, entitled

#### TUBERCULAR MENINGITIS IN INFANTS.<sup>1</sup>

DR. E. E. MORSE said the difficulty of diagnosis is greatly increased in infants, owing to the more highly sensitive nervous organization of children than adults, comparatively trivial causes—dentition, indigestion, and intestinal parasites—giving rise to symptoms of apparently cerebral origin. The physician has therefore to exercise due care in his diagnosis. Careful observers have noted certain symptoms which characterize tubercular meningitis; of these, vomiting, apparently without reference to feeding and of an uncontrollable nature; in the second stage of the disease a slow pulse and a comparatively low temperature, followed in the final stage by a rapid, weak pulse and Cheyne-Stokes respiration. Temperature throughout the disease is lower than in other forms of meningitis and cerebral inflammations. Tubercular meningitis is confounded more frequently with typhoid fever than any other disease. Both diseases have similar prodromes—pain, rapid pulse in the early stage, and tubercular meningitis may have pronounced abdominal tympanites. Most writers lay stress on the prodromal abdominal symptoms as the proper means of differentiating typhoid, as a rule, which is undoubtedly of value. In a case cited by Dr. Lochböhler before the Medical Society, although the symptoms were predominantly abdominal, tympanites, gurgling, tenderness, diarrhea, and a rose-colored eruption, it was subsequently diagnosed by both Dr. Adams, who saw the case in consultation, and Dr. Lochböhler, that the cause of death was tubercular meningitis. Since the discovery of the reaction for typhoid fever it should serve as a means of eliminating this disease.

Meningitis not tubercular is a disease which, as a rule, is marked by a more sudden and pronounced course, in many cases traceable to some pre-existing trouble, either by transmission or extension of inflammation from neighboring parts, notably the ear. A case in which could be found a tubercular history, or the history of any disease which might have served as a starting point of a tubercular inflammation, would be strong evidence of tubercular meningitis. Syphilis is the most universal cause of meningitis. The symptoms differ in no wise from those of tubercular inflammation. Dr. Morse was of the opinion that many cases diagnosed as tubercular, from which recovery is reported, are really syphilitic, inasmuch as tubercular meningitis is practically a fatal disease, no known treatment being successful in its cure. Advantage might be taken of its possible syphilitic origin by placing the patient on a specific treatment. Uremia likewise may produce a menin-

<sup>1</sup> See original article, p. 577.



gitis. Examination of the urine should always be made. Lumbar puncture cannot be relied on, no bacteria being found in numerous cases in which the patient undoubtedly died of tubercular meningitis.

DR. E. A. BALLOCH said he had seen cases of tubercular peritonitis and observed that subnormal temperature was a prominent symptom, especially in the morning, and thinks it might be true of tubercular meningitis.

DR. J. T. WINTER cited the case of a child at whose birth he had officiated. There was another child, 8 years old, who was healthy. The doctor did not see the child again until it was 8 months old, when it weighed about forty pounds. The mother was very thin and complained of feeling tired. He stopped her nursing the child at night and she improved. He saw the child again after several months and found it very much emaciated, fretful, feverish, and suffering from a diarrhea; convulsions developed, and the child died after eleven days.

DR. T. C. SMITH said he hoped the time would come when we would have some cures to report, and referred to a paper read by Dr. Acker in which he reported the recovery of some cases.

DR. C. N. ACKER said he had read a paper before the American Pediatric Society on "Two Cases of Meningitis." Dr. Jacobi said he had seen one case of probable tubercular meningitis that recovered, but he was doubtful about the diagnosis. Dr. Holt gave the history of several cases of apparent tubercular meningitis, but results showed that they were cases of simple meningitis. One case had meningitis with recovery. Some time afterward the child died of general tuberculosis, but the autopsy showed that the meningitis was of simple type and not tubercular. Dr. Samuel West, in the London Clinical Society Transactions, vol. xxviii., relates the history of a girl, age 2 years 7 months, with all the symptoms of the disease, but after a prolonged sickness recovered, and her brother, age 9 months, entered the hospital at the same time with similar symptoms and died in several months. The necropsy showed the cause of death to be tubercular meningitis. It is fair to hold that the girl had suffered with the same disease, especially as there was a hereditary tendency. Dr. Fry gives a case of tubercular meningitis with recovery, diagnosis having been made by lumbar puncture. In older children the diagnosis can be made with more certainty than in infants, because the symptoms are more marked. Tubercular meningitis must be diagnosed also from simple posterior basic meningitis in infants. There is a specific organism in this form, a diplococcus closely allied to the pneumococcus. In most cases the diagnosis is not made until after the autopsies.

DR. H. L. E. JOHNSON said that the most important feature of these cases is the diagnosis, which should be borne out by the postmortem. He doubted the accuracy of every diagnosis of tubercular meningitis where the patient recovered. He

believed syphilitic lesions are mistaken for tubercular meningitis, and referred to a case in point which had been seen by members of this Society, who could testify that a diagnosis of tubercular meningitis had been made on classic symptoms, when, as a matter of fact, the disease was syphilitic gumma which responded quickly to treatment. He referred to another case of a child who, following measles, presented undoubted symptoms of tubercular meningitis; the child was very ill and unconscious, but subsequently got well under alterative treatment. This case had a tubercular family history. He did not believe that any one could recover who had tubercular deposit in the pia mater and presented symptoms of brain pressure and irritation. He referred to the paper of Dr. Murphy, of Chicago, on tuberculosis of the lungs, in which cavities, previously shown by the X ray, were cured by his fixation method. He also referred to the cure of tubercular joints by rest, fixation, and subsequent fibrosis, but he did not believe that pressure could be exerted in the brain sufficient to cure the tubercular process there. He thought that in every case where the diagnosis of tubercular meningitis is made, specific treatment should be followed, and where death ensued postmortem should be invariably made. He appreciated how difficult it is to obtain the consent of parents for a postmortem examination of their babies; nevertheless, for the advancement of science, the medical attendant should invariably make the examination whenever possible.

DR. S. S. ADAMS said a diagnosis can be made from the symptoms of the later stage; we might as well say that a diagnosis of croupous pneumonia could not be made from the physical signs. In private practice it is difficult to get a necropsy in children under 2 years of age. In the Foundlings' Hospital he has not seen a case of tubercular meningitis, but has had simple meningitis. He does not blame the general practitioner for not making a diagnosis early; it cannot be made positively before the stage of effusion. When a mother insists that a child is changed in disposition, do not say that it is not ill, for she observes the habits of the child more closely than any one else. Do the cases get well? It is impossible to tell; his cases have died. He has never resorted to the lumbar puncture, as there is a great difference of opinion as to its practical value in making a diagnosis.

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## BRIEF OF CURRENT LITERATURE.

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### OBSTETRICS.

**Appendicitis and Pregnancy.**—A. Pinard<sup>2</sup> urges the advisability of operating upon every case of appendicitis occurring during pregnancy, on the ground that it is impossible to affirm that a case will remain catarrhal or that the collection of pus

will be localized. This is illustrated by a case reported by P. Ségond.<sup>2</sup> In this, symptoms of appendicitis appeared during the fifth month of pregnancy. Soon, however, abdominal rigidity, and all tenderness except a small amount at McBurney's point, had disappeared; there were some eructations of gas, but no vomiting, and gas and feces passed freely from the rectum. Operation was postponed, but marked symptoms suddenly reappeared, and an abdominal incision showed a gangrenous appendix and purulent peritonitis. Abortion and subsequently death occurred.

**Tubercular Peritonitis and Pregnancy.**—J. Gibert<sup>1</sup> concludes, from a study of this subject, that pregnancy exerts no influence upon the appearance of pulmonary tuberculosis, but that when the disease exists it usually aggravates it. The affection increases the liability to accidents during pregnancy, frequently causing premature labor or abortion or interfering at the time of labor. Paternal pulmonary tuberculosis may also cause premature labor or abortion. When the mother is suffering from the disease it is preferable to allow the pregnancy to go on to term, if it is well advanced, but if the period of gestation has but recently begun the advisability of inducing abortion should be considered.

**Amniotic Infection.**—Lehmann<sup>3</sup> states that infection of the amniotic fluid may occur through the placental circulation, by extension of a neighboring infection without rupture of the membranes, and by invasion of germs ascending from the vagina after premature rupture of the membranes. In cases of premature rupture of membranes, if infection has not occurred, the writer advises one vaginal injection followed by tamponade of the vulva; if infection has taken place labor should be hastened by rapid dilatation, version, or forceps.

**Fibroids and Pregnancy.**—Vautrin and Schuhl<sup>4</sup> advocate the performance of total abdominal hysterectomy shortly before the expected onset of labor in cases of uterine fibroids which threaten dangerous interference with delivery. They hope in this way to secure a viable child and to save the mother from the dangers connected with an obstructed labor and possible infection. They describe a case in which three fibroids existed, two of which were situated in the lower segment of the uterus. The patient also had placenta previa, and when labor began prolapse of the cord occurred. After gradual dilatation it was found impossible to pass the obstruction caused by the fibroids, and total abdominal hysterectomy was performed. The mother recovered.

**Cancer of the Cervix during Pregnancy.**—G. Michelini<sup>2</sup> holds that in all operable cases of cancer of the cervix during pregnancy the uterus and appendages should be removed at once by the vaginal route, whatever the duration of the pregnancy. It is possible even at term, and possesses the advantage of saving the life of the fetus while exposing the mother to no greater danger than the same operation in the non-pregnant state. In inoperable cases a conservative Cesarean

section is indicated. Delivery by the natural route is very dangerous, as it may cause severe infection. The writer reports a case which was successful for the mother, though the fetus could not be saved.

**Traumatism during Pregnancy.**—Rebreyend and Barbarin<sup>7</sup> present a report of a case of revolver wound of the abdomen in a woman three months pregnant, causing eight perforations of the intestines. Laparotomy was performed an hour and a half after the accident and the perforations sutured. Pregnancy continued normally for three weeks, when abortion suddenly occurred. The patient recovered completely.

**Passage of Substances injected into the Amniotic Cavity.**—From the injection of colored material into the amniotic cavity, and noting the time which elapsed before it appeared in the urine of the mother, Guinard<sup>4</sup> concludes that during the latter part of pregnancy the amnion absorbs very slowly and that the rapidity of the passage to the mother of colored substances injected into the amniotic liquid depends upon the period of development, taking place more rapidly early in pregnancy.

**Rest after Labor.**—G. Eustache<sup>6</sup> favors absolute rest in the position of dorsal decubitus, with but a single pillow, for two days after labor. On the third day he allows a partial sitting position, and on the fifth the patient is allowed to sit up in bed the greater part of the day. On the seventh day patients of the working classes are allowed up for an hour or two, increasing until the eleventh or twelfth, when they go about their ordinary work, avoiding laborious occupations until the end of the third week. Patients of better classes are confined to bed until the ninth or tenth day, and leave their rooms only at the end of the third week, resuming ordinary occupations at the end of a month.

**Fatal Hemorrhage during and after Labor.**—Schrader<sup>14</sup> has collected and reports 257 cases of fatal hemorrhage, and finds that in a large percentage of these cases labor was complicated by placenta previa. His investigations show that the fatal postpartum hemorrhage in placenta previa was rarely due to the atonic condition of the uterus, but was usually the result of cervical tears after version or rapid extraction.

Hitschmann<sup>16</sup> describes a case of normal parturition in which bleeding continued after expression of the placenta. Exploration of the uterus disclosed a tumor within the cavity, after removal of which the hemorrhage ceased. The tumor consisted almost entirely of normal decidual elements and was designated as a decidual polypus.

According to Zimmermann,<sup>17</sup> visual disturbances during eclampsia, such as amaurosis, amblyopia, hemianopsia, and diminution of the visual field, are conditioned by hemorrhages in the central optical tract. He describes a case in which the postmortem disclosed such a hemorrhage as the cause for these disturbances.



**Premature Labor.**—Hucklenbroich<sup>16</sup> reports 60 cases of induction of premature labor. Contracted pelvis formed the indication in 26 cases, while in the remaining cases uncontrollable vomiting, eclampsia, cancer of the stomach, and difficulty in breathing necessitated the operation. One patient died from sepsis. Of the children only 27 left the hospital alive; the others died before the tenth day. The method of induction consisted in the introduction of a bougie after Krause.

**Puerperal Fever.**—Bumm<sup>14</sup> classes as puerperal fever only infections caused by streptococci. Symptoms following decomposing secundines within the uterine cavity do not belong to what is commonly understood under puerperal fever. [As we have stated before, the term "puerperal fever" is obsolete and should be superseded by "puerperal infection." We fail to see why the infections produced by the colon bacillus and staphylococcus should not be classed with streptococcic infection, as both the symptoms and ultimate results are frequently the same.]

**Puerperal Infection with the Bacillus Aerogenes Capsulatus.**—F. C. Wood<sup>34</sup> reports the following conditions found at autopsy twenty-four hours after the death of a woman from puerperal infection. The whole body was noticeably swollen and there was a marked emphysema of the subcutaneous tissues. The superficial veins were distended with gas, and on opening the abdomen a large amount of gas escaped. The intestines were of a deep red from dissolved blood pigment, and the peritoneal coat was dull and covered with flakes of fibrin. Five hundred cubic centimetres of bloody fluid were found free in the dependent parts of the cavity. When the pericardium was opened gas escaped and a fresh pericarditis was found; a thrombus was found in the pulmonary artery. Gas was found in the heart muscle, liver, and spleen. The kidneys were large, the capsule stripped off easily, and their substance was edematous and rotten. Gas could be squeezed from the vessels. Large numbers of the capsulated bacillus were in cultures made from the uterus; these were accompanied with very few streptococci and numerous colon bacilli. Cultures from the pericardial and peritoneal fluids showed the capsulated bacillus, as did microscopical examination of the heart muscle, thrombus in the pulmonary artery, kidneys, lungs, and sections of the uterus. Sections of the hairy scalp of the fetus showed the same bacilli.

**Tubal Gestation.**—F. Lucas Benham<sup>24</sup> reports a case of tubal gestation occurring in a nullipara. The pregnancy, from the history, appears to have lasted from ten to twenty days. It terminated fatally from rupture and hemorrhage.

**Case of Postpartum Eclampsia.**—J. Brunton<sup>32</sup> reports a case of postpartum eclampsia which recovered. He reports this case on account of its rarity.

**Dystocia from Contraction of Bandl's Ring.**—V. Bué<sup>10</sup> reports a case of shoulder presentation with the arm completely extended and prolapsed, in which contraction of Bandl's

ring prevented the performance of version after bringing down a foot. He states that in such cases it is necessary to replace the prolapsed arm above the contraction ring, after which traction upon a lower extremity easily accomplishes version.

**Double Uterus and Vagina.**—Porak<sup>11</sup> describes a case of pregnancy occurring in a uterus bipartitus globularis with double vagina. During labor the septum between the two vaginas was lacerated at its upper part, necessitating its division throughout. Delivery was then completed with the assistance of forceps. Death occurred suddenly on the thirteenth day from pulmonary embolism.

**Retention of Dead Fetus.**—N. Charles<sup>12</sup> records a case of expulsion of a fetus which had been dead for about three months, labor occurring at the ninth month of pregnancy. The fetus was macerated but the liquor amnii odorless. The puerperium was absolutely normal.

#### GYNECOLOGY AND ABDOMINAL SURGERY.

**Saline Irrigation in Abdominal Operations.**—G. A. Hawkins-Ambler<sup>29</sup> takes up this subject somewhat in detail, giving the reasons for irrigation and arguments against it. For cleansing the peritoneum after operations it is undoubtedly the best method we have. We cannot as readily cleanse the intestines, omentum, etc., without undue exposure and handling. When irrigating a free outlet must be provided. After irrigation the pulse is increased in volume and quality very rapidly. Use a small trocar attached to a rubber tube whose end is placed in a ewer of blood-warm water, when you wish to obtain a gentle stream with which to wash out the gelatinous material that escapes from cysts; and while passing the tube into all parts of the abdomen that may be covered with the tenacious material, gently move the fingers over the intestines to promote cleansing. For blood clots use a larger trocar and a more rapid stream. When we come to pus and septic matter, irrigation invites disaster by spreading the infection. Hawkins-Ambler does not believe hot-water irrigations are as hemostatic as they are assumed to be. After irrigation it is not necessary to drain except in very rare cases. The peritoneum absorbs water rapidly, and thus if saline solution is poured into the abdominal cavity the peritoneum takes some of it up and thus helps to restore some of the fluid lost during an operation. He lays stress on the following precautions: (1) Use normal saline solution rather than plain hot water. (2) The temperature should be a little above blood heat, unless in cases of severe hemorrhage, when irrigations should be confined to the affected area and the stream shut off as far as possible from viscera not implicated. (3) Avoid irrigation in septic cases. (4) It should not be too prolonged, since a sodden peritoneum is likely to suffer damage as an absorbing agent, if it be not irrigated into such a suspension of this function that blood and plasma might be left unabsorbed for a

dangerously long period. (5) Where not required for cleansing purposes or as a hemostatic, equally as good or better results will be obtained by pouring into the abdominal cavity a quantity of normal saline solution as by injecting it into the rectum.

**Aberrant Portions of the Müllerian Duct found in an Ovary.**—Wm. W. Russell<sup>29</sup> removed the ovary described below during an operation for a cystic adeno-carcinoma of the left ovary. On microscopic study of the right ovary there were found areas which were exact prototypes of the uterine glands and interglandular connective tissue. Further search through serial sections of the remainder of the ovary revealed similar foci scattered throughout the specimen, in which the glands and interglandular connective tissue were in many places surrounded by bundles of non-striped muscle. On the posterior surface was a shallow groove, partly filled with glands of the uterine type, opening on the abdominal side. The epithelium covering this group gradually merged into a single layer of low columnar cells, and at the edges of the groove spread out over the surface for a short distance as the germinal epithelium. A large corpus luteum which occupied the outer pole was two-thirds surrounded by a narrow space lined with columnar epithelium. In places this epithelium dipped down into the tissue beneath and formed gland-like structures. In the substance of the ovary were spaces lined with columnar epithelium, in places having distinct cilia. Beneath this was a band of glands embedded in connective tissue. The glands were arranged as in the normal uterine mucous membrane and opened into the spaces, their epithelium being continuous with its lining membrane. The interglandular connective tissue was composed of small cells with darkly staining oval and round nuclei almost completely filling the cell body, in fact identical with that found in the uterus. Beneath the spaces were bundles of muscle, arranged more or less concentrically, with strands running off into the ovarian tissue. Leucocytes and red-blood corpuscles with indistinct outlines partly filled the spaces. The whole formed an exact reproduction of a portion of the uterine mucous membrane and muscle. The arrangement of these structures gave an impression that they were a continuous system from the groove on the posterior surface to a cystic space in the anterior face. In the specimen described above there was a collection of glands in a groove on the surface of the ovary. The epithelium covering them was continuous with a single layer of columnar cells at the margin of the groove and extending a short distance over the surrounding surface. Thus he claims that we have direct proof that the germinal epithelium is capable of producing glands analogous to those of the uterine mucosa.

**The Cause and Significance of Uterine Hemorrhage in Cases of Myoma Uteri.**—J. G. Clark<sup>28</sup> is convinced that the increased menstrual flow and atypical hemorrhages which are so frequently associated with these cases are dependent solely upon mechanical conditions, which induce, first, congestion of

the deeper seated muscular and endometrial vessels, and this in turn an increased or prolonged menstrual flow, and, second, an actual derangement or disorganization of the vascular system of the endometrium and of the tumor itself.

As the tumor increases in size it tends to grow in the line of least resistance, either outward becoming subperitoneal, or inward becoming submucous. With the outward mobilization of the tumor the tendency to a disturbance of the circulation decreases. In the quiescent state, during the intermenstrual period, the vascular system around the tumor is only partly filled. In the increasing congestion of the uterus incident to the menstrual cycle the arteries tend to resist the surrounding pressure and maintain their flow, whereas the veins may become compressed against the tumor, and as a result a venous stasis in the deeper-lying tissue occurs with a consequent increased and prolonged menstrual period. While the blood vessels near the tumor may be partially blocked, the anastomoses within the uterus are so perfect as to leave open many easy avenues of escape for the venous blood. Therefore even a decided increase, without further derangement in the menstrual flow, is the exception rather than the rule, unless there is infringement of the tumor on the endometrium. When the tumor reaches the mucosa the menses tend to become free and prolonged, due to a thinning of the mucosa and a degeneration of the vessels, which renders the usual diapedesis much easier or gives rise to an escape of blood through actual rupture of the capillaries. As the mucosa degenerates from the attachment of the tumor there is left a zone of mucosa around its base; from this zone active oozing may take place. When the tumor becomes necrotic the vessels become necrotic also and are rendered brittle, so that they are liable to rupture and give rise to marked hemorrhage.

**Genital Neuralgia and Genito-reflex Pains.**—F. P. Hammond<sup>18</sup> divides pain of genital origin into two classes: First, as pains in the nerve trunks of genital supply, or neuralgias that become apparent in the various parts of the genital system—pelvic neuralgia proper. Pains of this order may be excited through mechanical pressure, tension upon the nerve terminals through hyperpelvic congestion, vasomotor disturbances in its nutritive supply, or a toxemia from either chemical or septic infection in the genital tract. The seat of these pains is usually in the ovary, or deeper pelvic structures, or in the deep muscular structures of the inguinal, gluteal, or lower abdominal regions, or they may extend down along the course of the sciatic nerve. Like other neuralgias, they are more prevalent in subjects of the gouty or rheumatic diathesis, but they may become manifest in the most robust of physiques suffering from any disorder of the genital organs. Such neuralgias are not always of purely genital origin, but when traceable in their onset to a time when genital disorder first became apparent, or if the pain becomes heightened during a periodic congestion, and in mild cases it becomes apparent only at this time, we



may conclude it to be of genital origin. This form of neuralgia almost invariably follows gonorrheal infection, though the attack may have been so mild as to have left no other apparent symptom.

The second form of genital pain seizes upon the spinal and ganglionic nerve centres, or various centres of the brain, or it becomes manifest as an element of the sympathetic reflex disturbance of the viscera. It is a transmitted impulse, selecting that region of the central nervous system or those viscera that, for reasons before given, become a centre of attraction for any disorder existing throughout the entire economy. Thus the seat of this form of genital pain is in the lumbar, dorsal, or upper cervical region, or it becomes manifest as a feeling of weight and pain at the cranial vertex or basal region. In the viscera such pains follow the general law in localization that govern the visceral disturbances which become apparent under the influence of pregnancy, or a genital disorder of any sort, the ordinary functional disturbance being replaced by pain, or pain is associated with the derangement as its most pronounced symptom. Thus the gastric disturbance becomes a gastric neuralgia; the functional heart derangement has as its most prominent symptom neuralgia in the precordial and left intercostal regions, or, through the ramifications of the solar plexus, the flatulent disturbances give rise to a series of multiple intestinal pains. The pains of genito-reflex nature may become apparent in any remote organ or region of the body, either as a direct reflex disturbance of function, acting as an irritant to the sensory filaments of supply in the affected viscus; or they may be the secondary result of an irritating and altered glandular secretion, as from the hyperactivity and acid gastric secretion we get the familiar heartburn and migraine, or, from the acid salivary secretion of pregnancy, caries of the teeth and the familiar neuralgia of the fifth pair.

He advises for the relief of hysteria or quieting the generally irritable nervous system hot baths, especially in stout, flabby subjects. In conditions of hyperemia or anemia, irrespective of whether it be one or the other, the presence of the tamponade of boroglyceride, by separating the vaginal walls, lifting up and altering the position of the cervix, gives relief by releasing the nerve tension. For cervical congestion the gallotannic acid (1:3) he believes to surpass any of the metallic astringents. For parametritis and adhesions, as well as for metritis, he seizes the uterus bimanually and exerts a series of passive motions to and fro. The operative treatment of genital nervous affections is confined to plastic surgery. In all the operations the essential is removal of all cicatricial tissue and careful adjustment of the flaps with a clean line of sutures.

**Surgery of the Kidney.**—Alexander B. Johnson<sup>19</sup> reports 10 cases treated in the Roosevelt Hospital of New York in the period from January 1, 1890, to October 1, 1894. The several operations from whose work the report was made show a preference for incisions of a somewhat varied character. Dr.

Charles McBurney has frequently used, in both intra- and extraperitoneal nephrectomies, an incision of which the following description may serve as an example: A vertical cut two and one-half inches in length just external to the semilunar line, beginning just below the ribs and carried through the peritoneum. Palpation of both kidneys through this wound. Incision then carried outward and backward, parallel to the costal border, as far as the external border of erector spinæ. The subsequent steps were, in cases where extraperitoneal nephrectomy seemed to be indicated, suture of the peritoneal wound and stripping of the peritoneum from the posterior abdominal wall, thus exposing the front of the kidney. In intraperitoneal cases the opening in the peritoneum was increased to any desired extent outward and backward. When the tumor was large this incision was sometimes joined at its inner end by a vertical cut downward and of variable length. In cases of very large tumors of the kidney the incision was commenced in the semilunar line and carried vertically downward, or downward and outward, or inward over the most prominent part of the tumor. In a number of cases of extraperitoneal nephrectomy an incision one-half inch below the costal border and parallel to it was used, beginning at the outer edge of erector spinæ and extending forward a variable distance. The incision used for exposing movable kidneys began at the border of the erector spinæ, below the last rib, and was carried obliquely downward and forward a distance of four or more inches, according to the thickness of the abdominal wall.

Dr. Frank Hartley used the incision of König, or a modification of it in which the anterior portion of the cut turned upward in a curve in the direction of the navel. König's entire incision was used to expose the kidney and ureters—the modified incision when the kidney alone was exposed.

Dr. Robert Abbe used an oblique lumbar cut, downward and forward, from below the last rib, at the external border of the erector spinæ, a cut parallel to the ribs, and an incision made without division of the muscles as follows: a four-and-a-half-inch cut parallel to the crest of the ilium, two and a half inches above it, its centre opposite the midaxillary line; muscles separated by blunt dissection without division of the fibres; peritoneum stripped away from the front of the kidney and organs enucleated.

Dr. A. B. Johnson has used the incision before described as that preferred by Dr. McBurney, and in one case of a very large malignant growth this incision was further increased by a vertical cut in the semilunar line. The methods of treating the pedicle in these cases were as follows: When practicable, the artery, vein, and ureter were isolated, and the artery and vein were ligated with heavy catgut (not chromicized). The method of treating the ureter varied. In non-infected cases it was often simply ligated with catgut, its stump cauterized and dropped back into the wound. When infected it was ligated and cut close to the kidney. The stump was then cauterized

in its interior with the Paquelin point, ligated with catgut, again cauterized, and stitched into the lower or posterior angle of the wound as near the skin as possible. In some of the later cases the stump has been cauterized, inverted like the stump of an appendix, and closed by a purse-string suture and dropped back into the wound.

Except in a few cases no special effort has been made to extirpate the ureter. It has sometimes been severed at a distance of two or three inches below the kidney. The lowest point at which it was cut was at the level of the common iliac, and at so low a point only in one case.

In those cases in which isolation of the elements of the pedicle was impracticable the pedicle was surrounded by a heavy catgut ligature, the kidney cut away, and the elements of the pedicle were then ligated with catgut separately. In several cases heavy clamps were used upon the vessels and left *in situ*. Occasionally the stump of the ureter was treated in the same manner. The clamps were removed at the end of two or three days. In none of the cases of nephrectomy recorded in this report did hemorrhage follow after operation as the result of slipping, cutting through, or premature softening of a catgut ligature; and this method of treating the pedicle has been the rule, the use of clamps the exception. Silk ligatures have been used on the pedicle in a few cases. All the nephrectomy wounds were treated by partial suture and by packing the interval left with sterile gauze. In all cases where evidence of shock was present and in several where it was expected, hot sterile intravenous salt infusions were administered either during the operation or soon afterward. Similar infusions were used where the functions of the remaining kidney seemed to be impaired during the days following the operation, usually with the result of increasing the flow of urine.

The total number of nephrectomies was 33, with 6 deaths, or a mortality of  $18\frac{2}{3}$  per cent. The total number of nephrotomies was 54, with 7 deaths, or a mortality of  $13\frac{1}{5}$  per cent.

**Tuberculosis of the Fallopian Tubes.**—F. A. L. Lockhart<sup>20</sup> removed the right Fallopian tube from a woman who was troubled with pelvic pain and whose right tube was enlarged. The tube contained two rounded swellings, which consisted of caseous masses. In the walls of the tube were found giant cells. Although no tubercle bacilli were found, he believes the tube was involved by a tuberculous growth.

**Ligation of Uterine Arteries.**—Mangin<sup>21</sup> considers ligation of the uterine arteries a simple operation, without danger, and not necessitating anesthesia. He believes that it is useful for hemorrhages which resist medical treatment, when the lesions of the uterine mucosa are insufficient to explain them and curettage is accordingly inefficacious. It nearly always causes the disappearance of hemorrhages due to fibroids, and often leads to atrophy of these tumors, especially when they are in the neighborhood of the cervix. The only absolute contraindication to this operation is disease of the appendages. The writer describes a number of illustrative cases.

**Ethyl Bromide in Gynecology and Obstetrics.**—F. C. Hammond<sup>22</sup> states that this is the ideal anesthetic for making painful examinations, as there is only a small amount required, the return to consciousness is very rapid, and the after-effects are practically *nil*. A pure drug must be employed. He concludes that this drug is the anesthetic by choice for gynecological examinations, in incising abscesses in the abdominal wall, in making vaginal puncture for the removal of pelvic accumulations, for the removal of stitches (when a narcotic is indicated), for incising a vulvo-vaginal abscess, or any like procedure of short duration, say ten to fifteen minutes; in obstetrics, during parturition, for performing version, forceps application, or any obstetrical operation of brief duration.

**Ovaritis with Cystic Degeneration.**—E. S. Bishop and W. E. Fothergill<sup>23</sup> removed an inflamed ovary which was causing severe pain. On microscopical examination the inflammation in and about the organ appeared to have altered the development of the Graafian follicles in such a manner as to turn them into cysts filled with blood, instead of into ordinary corpora lutea of menstruation. The lining of the cysts was the remaining of the membrana granulosa. There was a small cyst on the surface of the ovary, which was ruptured at the time of the operation. They believe this is a case of an ovarian cyst caused by an inflammation of the ovary; they therefore conclude that many ovarian cysts may be prevented by the early treatment of ovaritis. The symptoms and physical signs which immediately preceded the operation were remarkably like those of an early tubal gestation.

**Elephantiasis of the Vulva.**—Wm. Finder<sup>25</sup> cites a case of this variety occurring in a woman 20 years old who had had syphilis and also gave a history of having received an injury to the part. The enlarged labium reached about one-third down the thigh. When it was removed the bleeding was very free.

**Cancer of the Rectum.**—J. M. Mathews<sup>26</sup> reports the case of a woman with a malignant growth of the rectum as large as a baseball. This tumor he removed by thorough curettement and obtained a marked improvement in the condition of the patient.

**Pyoktannin in Cancer.**—Wm. F. Honan<sup>27</sup> states that pyoktannin possesses virtues in certain inoperable cases. It possesses, internally and locally, some analgesic properties; it tends to arrest the extension of the disintegration temporarily. It is also a deodorizer, and in arresting the fermentation in the stomach stops the flatus which is so annoying to the patient.

**Vaginal Hysterectomy for Cancer.**—F. B. Jessett,<sup>28</sup> in performing this operation, is guided by the following rules: 1. If on examination of a patient suffering from a discharge from the uterus, in a woman at or past the menopause, the discharge is colored and offensive, and the introduction of the sound causes bleeding, he feels pretty sure he has carcinoma to



deal with and advises operation. Should any doubt exist he cures the uterus and examines the detritus microscopically. 2. If the disease has commenced in the cervical canal or external os, even if the vaginal walls are somewhat invaded, so long as the uterus itself is not fixed or the broad ligament invaded, he does not hesitate to advise operation. The mortality of the operation is less than eight per cent. He believes the final step in the operation of the utmost importance—namely, the catching the peritoneum covering the bladder and rectum and pulling it well down, so that when the vagina is packed the two layers of peritoneum are brought into accurate apposition.

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## DISEASES OF CHILDREN.

**Chloroform Narcosis in Children.**—Castueil<sup>1</sup> has employed chloroform narcosis 612 times in children under 16 years of age, without a single death. The child is prepared for the narcosis by having a bath, a laxative, and strict diet; the heart, lungs, and teeth are carefully examined. Loose teeth are removed. The child is completely undressed, covered with a woollen cover, and a linen compress used for the chloroform administration. Vaseline, glycerin, or oil should protect the face from burns. The operator should have at hand the following articles: forceps with cotton tampon, Pravaz syringe, ether, caffeine, serum, oxygen, a gag, an electric battery, and several compresses. With delicate children six or eight drops are sufficient to begin with. The operation should not begin too early, otherwise the child sleeps badly throughout. The pulse, respiration, and pupils must be watched. The child should be allowed to awaken by himself after the operation, and this usually occurs from fifteen minutes to one hour after cessation of the anesthesia. The best position for narcosis is a horizontal one.

**Chorea, Treatment of.**—J. Comby<sup>2</sup> thus sums up a study of the action of antipyrin and arsenic upon 52 cases of chorea occurring in his own practice. The cases occurred as to age as follows:  $3\frac{1}{2}$  to 5 years (2 cases),  $5\frac{1}{2}$  to 6 years (9 cases), 7 and 8 years (7 cases),  $8\frac{1}{2}$  years (3 cases), 9 years (6 cases),  $9\frac{1}{2}$  years (2 cases), 10 years (9 cases),  $10\frac{1}{2}$  to 11 years (4 cases),

11½ years (4 cases), 12 years (4 cases), 12½ to thirteen years (3 cases). There were 34 girls and 18 boys.

These cases of chorea were all severe, cases of light and medium severity having been intentionally omitted. With antipyrin prescribed in large doses (3, 4, 5, and 6 grammes—45, 60, 75, and 90 grains—a day), there were 4 failures out of 29 cases treated. Twice there was erythema, once temporary anuria. The average duration of the treatment was sixteen days.

With arsenic given in large doses (115 to 175 grammes—4 to 6 ounces) of Budin's fluid, in 7, 9, or 11 days, there was not one failure: the 23 patients treated all recovered. The average duration of the treatment was nine days. Arsenic cures chorea more promptly than does antipyrin, but it must be carefully watched. Among the symptoms which it may cause are vomiting; gastric disturbances, which occur rather often; pigmentation of the skin (1 case); arsenical paralysis (1 case).

**Eczema in Infants and Children, Treatment of.**—Charles Warrenne Allen\* believes that it is almost the exception to find an eczema, not clearly to be placed in the impetiginous or in the neurotic or reflex class, which does not present upon the anterior surface of the scalp, in the region of the fontanelle, evidence of greasy crusts mixed with exfoliated epidermis; or to have the mother give the history that almost from birth difficulty has been experienced in keeping this region clean and free from scales. The author is of the opinion that it is of the utmost importance, in order to secure good and permanent results in eczema situated upon the parts lower down, to bring the scalp back to a healthy state of secretion and keep it free from crusts and dirt. The treatment in the seborrheal form is almost exclusively local, as the health of these children is usually about the average. For the scalp affection resorcin is useful and may be applied in the following form:

R	Resorcin.....	gr. vij. to xv.
	Washed sulphur.....	gr. xxx. to ̄i.
	Lanolin.....	̄i. to ̄ij. ss.
	Lard.....	ad ̄ij.

M.

In almost all eczemas about the ano-genital and groin region the author uses a three per cent watery solution of methylene blue with the most satisfactory results. The drug is soothing and forms a protective coating, is antiseptic, and from its discoloration leaves no doubt as to the time when a new coat of the solution is required. The only objection is the staining of the clothing. The form of seborrheal eczema which is pityriasis, with dry desquamation and slight infiltration of the integument, is best treated with salicylic acid and ichthyol applications. If any internal derangement is present it must be overcome with internal remedies. If there is anemia, and especially if the secretions are inactive or there is some intestinal fermentation, the following tablet can be given with advantage:

R	Calomel. . . . .	gr. $\frac{1}{10}$ .
	Saccharated iron carbonate . . . . .	gr. $\frac{1}{2}$ .
	Powdered white sugar . . . . .	gr. 1j.
M.	Sig : One crushed in milk twice a day.	

If the mother is a beer or tea drinker, or if she is in a state of ill health or suffers from habitual constipation, her condition must be looked after for the benefit of the nursing. In the more chronic forms of older children, and when there are extensive scaly plaques upon the back of the neck or behind the ears, the author uses a stiff paste-like ointment, composed of resorcin, tar, zinc carbonate, zinc oxide, lanolin, and lard. In impetiginous eczema inoculated with the virus of true impetigo, ammoniated mercury ointment is useful. The neurotic, nervous, or reflex eczemas, usually of symmetrical distribution, occurring in young children who are florid, fat, and in fit condition, and in whom no error of diet may be discovered, is an excessively pruriginous affection, requiring primarily applications which will allay the itching and prevent the scratching which is so pronounced an element in the dissemination and aggravation of the condition. Although attributed to cutting of gums and intestinal irritation, reliance in the majority of cases must be placed almost wholly upon external measures. The author has devised a cap and mask for the purpose of retaining the dressings upon the head and face and preventing scratching. Besides this it is necessary to secure the hands to the side by means of safety pins attaching the sleeve to the diaper.

**Education of Epileptic Children.**—An editorial<sup>s</sup> comments upon the recommendations of the Departmental Committee on Defective and Epileptic Children. They propose a classification of epileptics for educational purposes as follows: (1) slight cases of epilepsy, in which the fits are mild or infrequent; (2) cases of severe epilepsy. Each of these is further subdivided into those cases in which (*a*) the mental condition is normal, (*b*) the mental condition is deteriorated, and (*c*) the epilepsy is complicated with blindness or deafness. Cases falling under the first division are considered educatable under the same conditions as non-epileptic children of the corresponding subdivision, though it is recommended that elementary teachers should have special instructions with regard to epileptic scholars, whom they must be careful not to overstrain. It is recommended that guides and conveyances should, when necessary, be provided for epileptics attending ordinary schools. With regard to severe epilepsy the case is different, and for children so afflicted the need of resident homes is recognized by all. Suitable education and occupation tend to diminish the manifestations of epilepsy, even of the severe type, during school age. Idleness seems to be in some respects more detrimental to epileptic than to normal children, as in the former there is the risk of irregular discharges if nervous energy be not properly utilized. Homes for epileptics should be in the country, and the buildings one-storyed so as to avoid accident in going up and down stairs.

**Embryoma Ovarii.**—Hüttl<sup>6</sup> operated upon a little girl of 3 years who complained of abdominal pain and tenderness. The abdomen grew large. During anesthesia a tumor was demonstrated growing from the right ovary. Both the ovary and tube were removed. The tumor was composed of a serous cyst, a dermoid cyst, and a piece of bone normal in structure. The child recovered without any fever.

**Hemiatrophia Facialis Progressiva.**—Francis Huber<sup>7</sup> reports a case of this rare affection. The disease is generally unilateral, though a few cases have been reported in which the trouble occurred on both sides. Some authors claim that the lesion exists in the cervical sympathetic; others believe it is due to a primary atrophy of the subcutaneous connective tissue independent of nervous influences. Again, it is regarded as a disease of the trigeminal nerve. Osler says, of the autopsies, Mendel's alone is satisfactory. In this there was the terminal stage of an interstitial neuritis in all the branches of the trigeminus, from its origin to the periphery, most marked in the superior maxillary branch. The occurrence of a neuritis of other nerves, as well as the association of facial hemiatrophy with scleroderma, would appear to strengthen this view. In some cases the morbid process may extend beyond the fifth nerve. The course is usually progressive, though in time a complete standstill occurs. Some cases are traumatic in origin, others have followed infectious diseases, and a number appear to be congenital. Facial paralysis in the new-born, the result of forceps application, is quite common, and the prognosis in the large proportion of cases is good, the muscles involved regaining their normal state in the course of a few weeks or months. In exceptional cases, however, the palsy persists. Facial deformity attended by pronounced atrophy, or, correctly speaking, retarded development of the bony structures and other tissues of the head and face on one side, is extremely rare.

**Hemorrhagic Disease of the New-born.**—Drs. Eleanor Kilham<sup>8</sup> and Elizabeth Mercelis<sup>9</sup> report their observations of 10 cases studied at the New York Infirmary for Women and Children—cases which they state are of interest mainly as illustrating the infectious character of the disease, now generally recognized, and because of the bacteriological investigations made in connection with them. The number of births occurring in the maternity ward from February 9 to May 11, 1897, was 54. The proportion of cases in which hemorrhage occurred was a little more than eighteen per cent. In no instance was it possible to obtain from the mother a history of syphilis, hemophilia, or tuberculosis, and labor was normal in every case. The ward had been entirely free from sepsis, there was no apparent cause for the first hemorrhage, and the cases followed one another in quick succession, often overlapping, and ceased when proper measures were taken for isolation. The authors report the cases in detail, and give a minute description of the bacteriological study of two of them, the



cultures in various media, and the pathogenic effects of the organism, animal inoculations, etc. The conclusions reached are the following: "The result of the bacteriological examination of these cases only adds to the present confusion in regard to a possible specific micro-organism of hemorrhagic disease in the new-born. To illustrate this one need only call attention to some of the findings reported, viz.: The streptococcus, alone or associated with an organism having all the characters of diplococcus of pneumonia; bacillus pyocyaneus, alone or associated with the staphylococcus; bacillus lactis aerogenes; an organism with the characters of Friedländer's bacillus; bacillus of Gärtner, also one resembling that found by Kolb in purpura hemorrhagica. Finally, the negative results obtained, and our own organism, which, while it suggests the diplococcus of pneumonia and probably belongs to the pneumococcus group, is to be distinguished from this as well as from all other described forms that we have been able to find."

**Infant Feeding.**—Charles W. Townsend<sup>9</sup> presents some remarks on the subject, with special reference to the home modification of milk. He has found frequently that an infant will thrive vigorously on home modification arranged to duplicate the formula it was previously taking from a laboratory, on which it had not thrived. He believes this is due to the churning process through which the milk goes on its way in carts from the laboratory to the house, which results in the formation of large fat globules. Then, again, it is necessary to send a large supply, especially on Saturdays, and for this reason the milk has to be sterilized. A certain number of children fail to thrive on sterilized milk, showing a lack of appetite or of digestive power, or both, and a few will develop scurvy. This objection does not hold in the case of pasteurization. If the top quarter is taken from a bottle of milk that is allowed to stand six to eight hours, it will contain about 10 per cent of fat. The percentage of albuminoids in this top milk is practically the same as in whole milk (4 per cent), and it will be seen that the relation between fat and albuminoids is the same as in woman's milk, that is, 10 to 4. The top milk, water that has been boiled, sugar of milk, and lime water are all the ingredients needed for the home modification. With a ten per cent cream, it is evident that 1 ounce of cream in a 20 ounce mixture would give a percentage of one-twentieth of 10 per cent or .5 per cent of fat. In the same way the percentage of albuminoids would be one-twentieth of 4 per cent or .2 per cent. A tablespoonful of milk sugar weighs  $3\frac{1}{2}$  drachms, so that each tablespoonful added to a 20 ounce mixture raises the percentage of sugar by 2 per cent. Thus, if we order top milk 4 ounces, water 15 ounces, lime water 1 ounce, sugar of milk 2 tablespoonfuls, we are making a formula of fat 2 per cent, sugar 4.80 per cent, and albuminoids .80 per cent. If we wish to increase the albuminoids without increasing the fat, it is necessary to add to milk from which the cream has been removed. Various modifications can be made from the data above mentioned.

**Intubation.**—Edward M. Plummer<sup>10</sup> has translated an article by Johann v. Bokay, entitled “Under what Circumstances do Pushing Down Pseudo-Membrane and Occlusion of the Tube take place in Intubation, and of what Importance are the Complications?” Pushing down of the membranes rarely occurs, for the following reasons: (1) The rounded lower end of the tube. (2) Thick pseudo-membranes are extensively formed only in extremely rare cases, and detachment of thin membranes is of little importance. (3) If thick membranes are formed, they usually have their origin below the vocal cords, and in this case the tube readily penetrates into the lumen of the pseudo-membranes. (4) Ominous difficulty of breathing—even in severe cramp cases—is not conditional upon the fibrinous exudate alone, but may be attributed to the subglottic swelling that is present as a rule.

Obstruction of the tube is a rare complication, (1) because, as before stated, thick pseudo-membranes are seldom extensively formed, and thinner fibrinous pellicles, if detached, especially when broken, pass through the tube with comparative ease; and (2) the exudate may be dissolved by rational treatment (inhalations of hot steam, mercurio-therapy), and expectorated in the form of a slimy secretion, if the croupous process remains confined to the trachea. Pushing down of the membranes is fatal only in very rare cases and can be overcome by immediate extubation. If the loosened membrane is not then expectorated, artificial respiration or secondary tracheotomy may be performed. Occlusion of the tube is not a frequent complication, and, if it does happen, is generally made harmless by expectoration of the tube. To prevent eventual occlusion becoming fatal, the patient should be under the continual observation of a trained nurse. Leaving the cord and fastening it around the neck enables even an inexperienced person to perform extubation in case of occlusion.

**Intussusception in Childhood.**—Koch<sup>11</sup> reports the case of an 8-months-old boy baby who had had an attack of diarrhea, followed quite suddenly by severe pain and constipation. On the following day a tumor was found in the left hypochondrium; there were vomiting, meteorism, pain, and blood passed from the bowel. As the intussusception could not be reduced, laparotomy was performed forty-six hours after the onset of the intussusception. It was found to be of the ileocecal variety, with the valvula Bauhini as the apex of the invagination. Recovery was retarded by an intestinal catarrh, but was finally complete. The case illustrates the point that when an intussusception cannot be rapidly replaced by therapeutic measures, it must be given into the surgeon's care, as only an early operation can prove curative.

Behrend<sup>6</sup> relates a case of spontaneous cure occurring in a boy of 11 years, whose symptoms came on suddenly. They were pain, vomiting, meteorism, and bloody stools. On the fourth day an injection was followed by marked improvement, and the bowels moved on the following day. Two days later

a piece of intestine fifty centimetres long and its mesentery were passed per rectum, and the boy made a perfect recovery.

**Muscles of Shoulders and Upper Extremities, Congenital Lack of.**—Geipel<sup>12</sup> describes the case of a girl in whom all the shoulder muscles and those of both arms, also the pectoralis major, are absent. The hands are in the position of manus vara. The right lower extremity also shows non-development of its muscles, and there is pes equinus paralyticus. The child can write by using both hands to hold the pen, and is very intelligent and amiable.

**Myxedema in Early Childhood.**—Lange<sup>13</sup> reports 2 cases, one in a child of 14 months, the other in a baby of 6 months of age. Both were typical in appearance and symptoms. The older child improved markedly under thyroid treatment, so that she began to talk and stand. The younger child improved, but was attacked by gastro-enteritis, and this was followed by a return of the dryness of the skin. Furunculosis developed and death occurred at the age of 11 months. The thyroid was about half the normal size, and microscopically composed only of fat and connective tissue. As for the etiology of these cases, it seems most probable that the normal thyroid secretion has the power of neutralizing certain substances in the blood, and that when the thyroid function is suspended these substances act as a source of autointoxication. Congenital cases of myxedema are of extreme rarity.

**Nail-biting and Tuberculosis.**—Leon Derecq<sup>14</sup> says that in the human organism there are solutions of continuity in the integument and mucosæ which afford entrance to the tubercle bacillus and which call for special protection. In children the mucous membranes of the respiratory and the digestive tracts have always been considered as especially susceptible to the pathogenic germs, because in the various indispositions of childhood they are so apt to become hyperemic—a condition which interferes with their perfect integrity. This fact and the desire to keep childhood in the best possible hygienic condition has caused the author to consider nail-biting of great importance. Children's hands touch and seize every known object without discrimination, and the fingers may carry germs of all kinds into the mouth. Here they find a favorable culture medium, lodging also in dental cavities. The author has found many cases of nail-biting among children suffering from pulmonary tuberculosis. To cure the habit he advises painting the ends of the nails and the tips of the fingers daily with a five per cent solution of silver nitrate. If the child continues to bite his nails, the trace of the teeth will be found in a discolored portion of the black stains left by the medicament. The treatment causes no pain, but the child is ashamed to have its habit so closely followed and discovered, and in less than a week the habit is often completely cured.

**Obliteration of the Umbilical Vessels.**—Robert L. Dickinson<sup>15</sup> calls attention to obliteration of the umbilical vessels by electro-hemostasis with the Skene forceps, in lieu of ligation,

for the purpose of preventing decomposition, which he thinks may sometimes be the source of infection in puerperal fever, abscess of the breast, or failure of union in a perineal rupture. The vessel or stump grasped in the bite of this instrument becomes, within the space of half a minute to two minutes, a white, horny ridge comparable to the edge of one's finger nail in consistence and color. The edge does not slough, but promptly becomes reorganized, and there is no danger of hemorrhage from the severed end. The utmost care must be used in order that the stump may be left dry, white, and horny; but nowhere must it be black or charred, otherwise sloughing will occur.

**Occurrence of a Pad on the Dorsum of the Foot in Rickets.**—A. H. Tubby<sup>16</sup> brings out the following points: 1. In a large proportion of cases of rickets the feet show definite dorsal pads, and in a smaller proportion of cases the same appearance is seen on the backs of the hands. 2. This pad is of varying consistence and origin. 3. If the disease be of recent origin—two to six months—the thickening is subcutaneous and is semi-fluid. 4. If the rickets have existed from six to eighteen months the pad is best marked and is made up of thickened subcutaneous tissue and periosteum and overgrown epiphyses. 5. At a period of eighteen to thirty-six months after the onset of the disease the subcutaneous pad disappears concurrently with the general flabbiness and undue pallor of the skin, and leaves the bony changes well apparent to the touch.

**Peritonitis, Purulent; Operation.**—Hüttl's<sup>6</sup> case occurred in a boy 9 years of age, whose illness began with vomiting, high fever, abdominal pain, and obstipation. The abdomen was distended, very tender and fluctuating, with many pustules in the epigastric region. Treatment was followed by temporary improvement, and then the swelling increased. Puncture demonstrated the presence of thick pus, which was found to be sterile. At the operation five litres of pus were evacuated. There were no adhesions in the abdominal cavity and the appendix was normal. Recovery resulted. The etiology remained unexplained.

**Pertussis, Formalin in the Treatment of.**—Howard S. Olliphant<sup>15</sup> expresses himself as being much gratified with the results obtained, and believes that formalin is as much a specific for this disease as mercury for syphilis or quinine for malaria. With this treatment the duration of the severest cases was less than a week, and several cases after three applications were cured. The author looks upon pertussis as simply an infection of the fauces, a place perfectly accessible to disinfection and therefore curable in a few days. Free emesis follows each application, thereby dislodging the germs as well as destroying them. The author warns against too strong a solution being used in cases of young and debilitated children.

**Pott's Disease, Semiological Value of Exaggerated Reflexes in.**—In a recent thesis Giacometti<sup>17</sup> upholds the views of Pierre Delbet, which may be summed up as follows:



The early nervous symptoms (paretic or painful), which often appear long before the characteristic symptoms of the vertebral affection, can be traced to their cause only by a complete examination of the patients. In this examination special attention should be paid to the reflexes, from which we can learn the following points:

1. Paresis or paralysis with flaccidity, with exaggeration of the reflexes, indicates a medullary lesion.

2. Paralysis with flaccidity, without pain or exaggerated reflexes, indicates almost positively a peripheric lesion.

3. Painful phenomena with exaggerated reflexes indicate a radiculo-medullary lesion.

4. Pain with diminished reflexes suggests a peripheric lesion, but does not absolutely prove the spinal cord to be unaffected. If a radiculo-medullary lesion be recognized, the peripheric symptoms having indicated a central cause, there will nearly always be found some sign in the vertebral column which will permit of the diagnosis of Pott's disease. Exaggerated reflexes appear very early in this affection. The slightest medullary compression, or abnormality in the vascularization of the spinal cord, caused by a tuberculous meningitis, will suffice to induce hyperexcitability of the medullary centres, made manifest by this symptom. Exaggerated reflexes may be found not only in patients who have only slight pain and weakness, but also in those who are conscious of no trouble in their limbs except occasional fatigue. They precede paralysis. This symptom, unlike contractures, does not imply a grave prognosis. It proves that the spinal cord is affected, but does not imply a deep medullary lesion. Recovery is possible, even when the symptom is very marked. The exaggeration of reflexes often persists after the disappearance of the motor troubles, a certain hyperexcitability having been acquired by the medullary centres which preside over reflex movements. An early diagnosis of Pott's disease will permit of treatment, which is likely to be successful in proportion to the early stage of its application.

**Prevention of Deformity after Excision of the Knee in Children.**—Wisner R Townsend<sup>4</sup> reports a number of cases with remarks, from which the following conclusions may be drawn: (1) Excision of the knee should rarely be performed before puberty. (2) Erosion, arthrectomy, or partial operations are to be preferred. (3) Shortening will usually follow, and depends on the amount of bone removed and the age when the operation was done. (4) Protection should be given to the knee for a long time after the operation, to prevent flexion, knock-knee, genu recurvatum, bowleg, and other deformities. (5) Always put the leg up straight. (6) In severe septic cases amputation is preferable to excision.

**Rachitis.**—Charles O'Donovan<sup>16</sup> believes that improper food is the chief etiologic factor in the production of this disease. The faulty assimilation of improper food, rather than the unsanitary condition of the surroundings, seems to be responsible for the trouble in most cases. The limbs straighten out, and

the bony enlargements, in a large measure, disappear under the stimulus of healthy play in the open air, but this is because the functions of the stomach and intestines are stimulated and proper aliment is supplied to the growing bones.

**Rachitis, Fetal.**—Joachimsthal<sup>10</sup> presents a case which has really nothing to do with true rachitis, but which is a chondrodystrophia fetalis. At birth the child's body appeared of normal length, but its legs and arms were very short. Growth proceeded normally until the age of 3 years and then ceased, so that at 11 she is very small. Her mental condition is very bright. The enlarged epiphyses and the beaded ribs are similar to those which appear in rickets. There was a double genu varum, for which an osteotomy was done so successfully that the legs were not only straightened, but lengthened two and a half centimetres. Study of the bones by means of the Röntgen rays showed that there was a very marked proliferation of the cartilaginous ends of the bones, with an almost complete absence of ossification. The process differs both from rickets and from cretinism. The thyroid gland is palpable and apparently of normal size.

**Radiography.**—Redard and Lara<sup>14</sup> speak of the importance of the X-rays in the diagnosis and treatment of deviations of the spinal column. In *Pott's disease* the authors obtained results which clearly showed tuberculous areas in various stages. The initial vertebral tuberculous lesions were shown in several of their observations, permitting them to make a diagnosis of Pott's disease, and therefore to institute immediate treatment before the subjective and objective symptoms pointed to the trouble. During treatment radiography kept them informed of the continued invasion or the retrogressive tendencies of the tuberculous process. Valuable information was obtainable as to the straightening of gibbosities, the X-ray showing the exact condition of the rhachis, the existence of cold abscesses, and the more or less extensive loss of vertebral substance. It also showed the results obtained by the treatment. In several cases, after straightening, the rhachis was found to be consolidated in excellent position. The soldering of several vertebræ by a peripheral or interfragmentary callus, and the special union of various portions of the vertebral axis, was demonstrated. *Scoliosis*—Thanks to radiography, we can now obtain information as to the arrangement and subsidence of the vertebræ, which was formerly ascertained only by anatomicopathological researches. The various deformities of the body, pedicle, and arch of the vertebræ can be plainly seen, as well as the degree of cuneiform deformity, rhomboidal subsidence, and the asymmetry and deformity of the vertebral arch. The degree of lateral inflexion of the spinal column is also seen, the deformity of the vertebral bodies, the striation of the body substance, the direction of the bony columns, the state of the nuclei and the epiphyseal cartilages. Moreover, radiography shows the different conditions of the trabeculæ and of various portions of the spinal column on the concave and convex sides.

It demonstrates the fact that the bony tissue of the concave side is more dense and the medullary spaces smaller, and that, contrary to the opinion generally held, the tissue of the vertebræ of the concave side, instead of being hypertrophied, is the seat of hypernutrition and osteogenesis much more marked than on the convex side.

**Spasmodic Diplegias of Childhood.**—C. Oddo<sup>20</sup> contributes a study of the classification and pathogenesis of this group of affections which occur in youth, and which possess in common the characteristics of bilateralness and a spastic character of persistent motor troubles.

**I. CLINICAL TYPES.**—Muscular rigidity is the essential symptom of all spasmodic diplegias. This is sometimes distinctly limited to the lower limbs, which remain fixed in a position of inward rotation with forced adduction, equinus, and exaggerated reflexes—this is the pure paraplegic type. Sometimes it is more or less generalized, invading the trunk, the upper limbs, the muscles of the neck and even of the face and eyes, giving strabismus with an immobile face. Even in this generalized form the spasmodic rigidity predominates in the lower limbs. In the majority of cases there are super-added symptoms which Little called the *cerebro-spinal form*. *Convulsions* may also appear and be either transitory or permanent (epilepsy). Freud has found that they are most frequent in acquired forms of the disease, in which they become permanent, while in the obstetrical forms they appear early and disappear quickly. According to Rosenthal they are absent in cases of pure diplegia, and frequent in the diplegia accompanying chorea and in the congenital forms and those of unknown origin.

*Double Athetosis and Congenital Chorea.*—Opinions differ as to whether these two affections are at all interdependent.

*Spasmodic Hemiplegia of Childhood.*—This symptom, which is usually unilateral, may, according to some observers, be bilateral.

*Defective Intelligence* was considered by Little to be one of the chief characteristics of the cerebro-spinal form. If an attempt be made to group these various symptoms so as to make a clinical classification of distinct types, we at once run up against the most diverging theories. On the one hand there are the dualists, who believe that there are two distinct types of diplegia; on the other those who admit of no distinction whatsoever; while between them there is a third set of theorists who endeavor to reconcile the differences of the other two, but who in reality approach more to the single than to the dualist theory.

**II. ANATOMICO-PATHOLOGICAL TYPES.**—We should expect light upon the subject from pathological anatomy, but such is not the case, this being the most obscure part of the matter, owing doubtless to the extreme rarity of observations, recovery being the usual result in diplegias. In the complex cases with grave cerebral lesions we find only traces of processes whose

evolutions have already been completed, and which teach us practically nothing in regard to the processes, as one terminal cicatricial lesion may be the result of widely differing primary lesions.

**ETIOLOGY.**—As to this, Little held that the most frequent causes were premature birth and abnormal labor causing asphyxia of the fetus, to which must be added the influence of infections, especially syphilis. Heredity also sometimes plays an important part.

*Premature Birth.*—Some authorities consider this the essential condition to Little's disease. Others oppose this view, some contending that the same cause produces both the premature birth and a cerebral lesion to which the diplegia is due.

*Asphyxia of the New-born Infant.*—That the condition may be due to a meningeal hemorrhage is very probable. But here again opinions differ as to the necessary relation of the asphyxia as cause and the diplegia as effect.

*Toxi-infections.*—All agree that these may cause the affection under consideration. The infections may act upon the fetus through the maternal organism, or they may directly attack the new-born infant. (a) Infectious diseases affecting the mother during pregnancy, as well as alcoholism and lead-poisoning, may cause grave lesions of the nervous system of the fetus, which will be manifested after birth as motor, trophic, and psychical disturbances giving all the forms of diplegia. (b) Extrauterine infections give the acquired forms of diplegia, which Freud distinguishes from the congenital or obstetrical, and which cause the grave forms with convulsions at the onset, leading later to epilepsy, frequently accompanied by athetosis.

*Hereditary Syphilis*, as is shown by recent investigations, affects the central nervous system, giving cerebro-spinal and spinal forms of the disease, as well as a special form, the *relapsing spastic paralysis* of Friedmann.

*Heredity.*—Under the head of indirect heredity Freud places affections of the maternal organism during pregnancy. There is also nervous heredity derived from either father or mother, or both, such as hysteria, epilepsy, insanity, imbecility, multiple sclerosis, and consanguinity. The influence of direct heredity has been long held to be doubtful, but some cases have been cited in support of this occurrence. The affection certainly seems to run in certain families. An attempt at a classification may be made as follows, but it must be understood that it is not positive:

I. DIPLEGIAS OF CEREBRAL ORIGIN.—(a) *From various cortical lesions* (sclerosis, porencephaly, cysts, etc.): Origin usually from infection, hereditary syphilis among others. Anterior or posterior to birth. Clinical form sometimes of a special type (double spastic hemiplegia, trophic disturbances predominating in the upper limbs). (b) *From meningeal hemorrhages*: Origin obstetrical, as dystocia and asphyxia at birth. *Characteristics common to cerebral hemorrhages*:



Coexistence of cerebral troubles; defective intellect, epilepsy, convulsions, congenital chorea, athetosis, *stationary course of disease, incurability.*

II. DIPLEGIAS OF MEDULLARY ORIGIN (Little's disease).—Origin congenital, connected with premature birth. Pyramidal agenesis. Symptoms purely spastic, paraplegic, or generalized. Absence of cerebral troubles. *Retrogressive course.*

III. FAMILY TYPE OF DIPLEGIAS.—Onset at varying ages. Varied clinical types. Special signs which are absent in the other forms, as nystagmus and volitional tremor. Connected with combined sclerosis of the crossed pyramidal tracts, direct cerebellar tract, and columns of Goll. The study of the pathogenesis of the affection goes so minutely into the differing theories held by investigators as to be valueless in abstract form.

**Suffocating Laryngitis at the Onset of Measles.**—M. Sevestre and Bonnus<sup>21</sup> call attention to the fact that at the beginning of measles, and even before there are any cutaneous manifestations, grave laryngeal accidents may occur, characterized either simply by attacks of laryngismus stridulus or by a paroxysmal dyspnea with *persistent "tirage"* during the interval between attacks. In some cases there is danger of death by laryngeal asphyxia. Prompt intervention should be resorted to, either by tracheotomy or preferably by intubation.

**Syphilis, Signs of Inherited.**—Referring to the statistics of this disease in children, Robert H. M. Dawbarn<sup>22</sup> states that about one case in four of inherited syphilis survived, whereas in 40 cases of acquired syphilis in the infant all but one recovered under proper care. The author arranges the signs under twenty-seven heads: (1) The look of "*little old men*" and the sallow or "*café au lait*" color of the skin. A plump baby may, however, prove syphilitic. (2) An *umbilical cord* so extremely thick as to seem swollen, and also apt to be very long; may be very slow in becoming detached from the navel. (3) *Pemphigus syphiliticus*. With this sign the mortality is almost one hundred per cent. The *vesicular* syphilide, much rarer, occurs in smaller blisters and is commonly associated with a pustular eruption. The vesicles are grouped and closely packed together. It is not so fatal a sign as pemphigus. (4) The *common eruption* in its most frequent early form is an erythema. The macules appear first upon the lower part of the abdomen and about the genitals, as a rule; pinkish early, later coppery in color. The rash is apt to show itself about three weeks after birth, and subsequent crops may show any and all syphilides. The eruption occurs only in about twenty five per cent of cases. (5) *Condylomata* are often seen early at muco cutaneous junctions. (6) *Snuffles* is one of the commonest signs. (7) *Hoarseness* of the crying and speaking voice, due to pathological changes in the larynx. (8) *Mucous patches* quite often upon any of the mucous surfaces. (9) *General stomatitis* and *pharyngitis* is an almost constant

phenomenon in early cases. Ulceration is apt to appear later; a peculiar desquamation of the tongue has been noted at times. (10) *General lymph-nodular enlargement* of the usual subacute and chronic kind is characteristically *absent* in the congenital type, the reverse being true in the acquired form. (11) *Hemorrhages* from the ulcerated or from apparently sound mucous membranes, while infrequent, are diagnostic when present. Ecchymotic spots may develop without traumatic cause. (12) "*White pneumonia*" may be seen in the stillborn and those dying shortly after birth. It is due to a fatty degeneration of the epithelium of the air vesicles. Interstitial pneumonia may occur in older cases. (13) *Involvement of the liver* is very frequent. It may cause ascites, but is not accompanied by jaundice. (14) The *spleen* is enlarged in at least half the cases. (15) *Eye troubles*. The "ground-glass cornea," due to interstitial punctate keratitis, with no tendency to ulcerate, is pathognomonic. Iritis, choroiditis, retinitis, and optic neuritis may also be found. (16) Inflammation of the *middle ear*, when associated with notched teeth and ground-glass cornea, is a sign of much value. (17) A rapidly occurring *alopecia* is suspicious. (18) *Painless orchitis* is a sign of great value when present. (19) *Neuroses*, such as chorea, epilepsy, and hemiplegia, are infrequent and do not occur early as a rule. (20) *Osteochondritis* is often the only sign. The swellings are rather distinctly limited, as a rule, and the child suffers when they are handled. Those of rickets are apt to occur much later and to be more epiphyseal than in the cartilage and shaft. In bad cases there may finally occur separation of the epiphyses, suppurative osteomyelitis, and narcosis. (21) *Syphilitic periostitis* appears later. The "*nodes of Parrot*" arise from this source. Here the two parietal bones are so thickened as to form distinct bosses, four in number, surrounding the anterior fontanelle. (22) *Dactylitis syphilitica* affects mainly the first phalanges. It differs from the tuberculous variety in this regard, as also the fact that with syphilis as a cause it is apt to be multiple and symmetrical—that is, appearing in both hands. (23) The *finger nails* have sometimes peculiar forms of onychia. It may be ulcerative or in the characteristic form known as "*the claw*." (24) The *temporary teeth* are cut very early, of bad color, and liable to a crumbling decay. (25) *Hutchinson's teeth* are found only in the permanent set. (26) In late cases are found irregularities, hypertrophies, and asymmetries of the bony development, such as the shortened nose, the lower part retreating to the upper part, and the sunken bridge. The tibia may become changed so as to present the characteristic "sabre shape." (27) It is well to look into the stigmata of a syphilis which was active in early childhood but now quiescent or cured. These are the bony changes, linear cicatrices due to chronic fissures about the lips, small scars upon the skin or mucous membranes of curvilinear or crescentic forms, and in groups or symmetrical on two sides, especially on the legs.

**Tenia Nana (Hymenolepis), Case of, in Germany.**—Röder<sup>12</sup> reports the case of a little girl, 2½ years old, who had passed lumbricoid worms six months before and now presented the symptoms of tapeworm. After giving the extract of filix mas the stools contained the eggs of ascaris and of tenia nana. Seven months later the child's general condition had become very poor and she showed symptoms of scrofula. The eggs were found again, but no worms. The child improved very much under treatment, and some months later a careful examination of the stools failed to discover any more eggs. These had been absolutely characteristic, and the number of the teniæ must have been very few. The source of infection remained obscure. This is only the second case which occurred in Germany since 1892.

**The Head in Rachitis.**—Jean Bonnifay<sup>23</sup> thus sums up a detailed article upon the subject: 1. During the first period of rachitis the absolute dimensions of the head are usually diminished. 2. After 5 years of age these dimensions are usually increased. 3. Relatively to the trunk, the rachitic head is always larger than normal. This disproportion between the head and the trunk is the most marked characteristic of rachitis. 4. The disproportion between the head and body goes hand in hand with brachycephalia, which is a lack in proportion between the various portions of the head.

**Treatment of Tuberculosis.**—Quoting from a Portuguese journal, Dr. Duhourcan<sup>14</sup> describes Joaquim Evaristo's method of treating tuberculosis by subcutaneous injections of ascitic fluid taken from cases of tuberculous peritonitis and aerated before injection. The Portuguese surgeon, like many other practitioners, had observed the fact that ascitic peritonitis is more benignant than the dry form, which is usually fatal. One step further led to the belief that the fluid exuded into the peritoneal cavity not only did not favor, but was even inimical to, the development of tuberculosis. It is a recognized fact that in simple laparotomy exposure to the air often brings about a cure of tuberculous peritonitis; the air, by acting upon the fluid which bathes the granulations, apparently increases its antitoxic properties. The bacillus of tuberculosis appears not to secrete toxins; these are met with in the organic cell itself, and by the disaggregation and dissolution of this cell the intoxication of the organism is produced. An antitoxic or parasitocidal agent has been found in the body of the bacilli or in leucocytes which had been acted upon by them. The fluid of tuberculous ascites has the necessary elements to make of it an antitoxic serum or a natural parasiticide. By their development in the peritoneal cavity the tuberculous granulations produce an inflammatory process which denudes the serous membrane and causes the formation of an exudate which collects as ascites. Among its other contents this fluid must hold disaggregated and dissolved bodies of Koch's bacillus, as well as leucocytes which enter into conflict with the bacilli during the process of exudative inflammation. The fluid in which these elements

are immersed and macerated exercises a special influence upon them, due to the ferments which it contains, and to the bactericidal property possessed in some degree by all organic serums. The aeration of this fluid completes the process which transforms it into an immunizing serum. Clinical observations have confirmed the theories of Evaristo. His first case was one of tuberculous ascites, which he treated by evacuating the ascitic fluid, aerating it, and then reintroducing a portion of it into the peritoneal cavity. He has since treated 15 cases of tuberculosis. The initial dose is of one-half cubic centimetre (eight minims), and this is gradually increased in accordance with the course of the temperature. The maximum dose was three cubic centimetres (fifty minims). As a rule the first injections are followed by a rise of temperature of one degree ( $1.8^{\circ}$  F.) in cases of febrile tuberculosis, and a half-degree ( $.9^{\circ}$  F.) in apyretic cases. The effects of the injection in pulmonary tuberculosis are the following: disappearance of sweating, increase in appetite and strength, diminution of cough and expectoration, and improvement which goes on to a complete disappearance of stethoscopic signs.

**Umbilical-cord Treatment in the Newly-born.**—Horn<sup>12</sup> is strongly in favor of the dry treatment of the umbilical stump, with the use of earth powder, and no baths until after the cord has fallen off. He allows the children to be bathed once, immediately after birth, and then the cord is dressed with dry cotton and the powder. In 160 consecutive cases so treated there was no case of suppuration, the powder being antiseptic and not irritating to the child's skin. The falling off of the cord stump is slightly delayed, but the umbilicus is left in such very good condition that the method is well worth using.

**Value of Enlarging the Palpebral Slit in Inflammations of the Eye.**—Ettinger<sup>24</sup> has had an unusually large experience with long-standing and recurring eye inflammations, and he has found that the best method of treatment is by means of a plastic operation at the outer canthus which enlarges the space between the lids. Anesthesia is necessary, and, after the skin incision, the tissues down to the bone, including the periosteum, should be carefully and similarly divided and the edges brought together in such a way as to insure primary and perfect union. The swelling of the lids which comes on after the operation should be treated with cold applications and boracic acid. The value of the operation lies in the fact that it does away with the vicious cycle dependent upon retained secretion and its consequences.

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Jour., March 4. <sup>16</sup> Ped., Jan. 1. <sup>17</sup> Revue prat. d'Obst. et de Gyn., Feb. <sup>18</sup> Jour. Am. Med. Assoc., March 18. <sup>19</sup> Berlin. Klinische Wochens., vol. xxxvi., No 11. <sup>20</sup> Arch. de Méd. des Enf., Feb. and March. <sup>21</sup> Arch. de Méd. des Enf., Feb. <sup>22</sup> N. Y. Med Jour., April 8. <sup>23</sup> Revue mens. des Mal. de l'Enf., March. <sup>24</sup> Centralblatt für Kinderhk., vol. iv., No. 3.

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## ITEMS.

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A COMMITTEE of over forty physicians, representing sixteen different medical societies of the city of New York, and including representatives of both schools of medicine, has been formed for the purpose of doing honor to the memory of DR. JOSEPH O'DWYER.

The first meeting was held at the New York Academy of Medicine, November 22, 1898, under the chairmanship of Dr. J. D. Bryant, and was mainly devoted to organization. Dr. George F. Shrady was elected permanent chairman, and Dr. Alfred Meyer permanent secretary, and the following Committee on Scope and Plan was appointed: Dr. Dillon Brown, chairman, and Drs. Robert Abbe, R. G. Freeman, L. Emmett Holt, and Louis Fischer. At the second meeting, held at the Academy of Medicine, March 13, 1899, the report of the Committee on Scope and Plan was adopted, and now only awaits final action of a meeting of the full committee.

The memorial to Dr. O'Dwyer will probably take an educational form, for by the plan now outlined it is proposed to raise a fund of \$30,000, the interest of which shall support two O'Dwyer Fellowships in Pediatrics, open to competition by physicians who graduate in the United States, and to be held by the successful competitors for a period of two years. During this period they must furnish satisfactory proof of their engagement in original research work to a committee of five, one of whom shall be appointed by the President of Harvard University, one by the Dean of the Johns Hopkins Medical School, one by the Provost of the University of Pennsylvania, one by the President of the University of Chicago, and one by the President of the New York Academy of Medicine.

Many details of this general plan are still to be arranged, which it shall be the agreeable duty of the secretary to furnish to the medical press of the country as soon as they are finally decided. This preliminary notice has for its object merely to acquaint the profession with the fact that a movement of this nature is on foot, and that an effort will be made to give it the international character so fitting as a memorial to an investigator of international reputation.

THE following is a partial list of the papers to be read before the meeting of the AMERICAN GYNECOLOGICAL SOCIETY to be held at Philadelphia on May 23, 24, and 25: Vaginal Celiotomy—A. Laphorn Smith. Sixty-five Consecutive Abdominal Sections without a Death: with Clinical and Pathological Reports—Hunter Robb. Remote Results of Shortening the

Round Ligaments by Vaginal Section—Henry T. Byford. Surgical Treatment of Acute Puerperal Sepsis, with Special Reference to Hysterectomy—H. N. Vineberg. (Title not given)—Eugene Boise. Is a Sloughing Process at the Child's Navel Consistent with Asepsis in Childbed?—Robert L. Dickinson. Report of a Case of Kraurosis Vulvæ—J. M. Baldy. Conservative Gynecology—S. C. Gordon. Early Abdominal Sections for Fibroid Tumors, with a Tabular List of all Operations prior to 1865—Charles P. Noble. Certain Aspects of Myomectomy; also, perhaps, Management of Surgical Injuries to the Ureters—Beverly McMonagle. Report of Committee on Antistreptococcic Serum, etc.—W. R. Pryor. Tuberculosis of the Kidney as an Indication for Nephrectomy—Edward Reynolds. Inversion of the Uterus—B. Bernard Browne. Abdominal Operations for Conditions Complicating Typhoid Fever—J. Wesley Bovée. The Treatment of Broad-Ligament Cysts by Vaginal Incision and Drainage—T. J. Watkins. Etiology of Non-malignant Rectal Stricture in Women—Reuben Peterson. A Case of Spondylolisthesis, with Demonstration of the Pelvis—J. Whitridge Williams. Experience in the Use of Tuffier's Angiotribe in Intrapelvic Surgery—Clement Cleveland. The Use of Compression Forceps in Salpingo-oöphorectomy and Hysterectomy, with Remarks upon the Angiotribe—I. S. Stone. Discussion: The Scope and Limitations of Myomectomy in Solid Tumors of the Uterus—J. M. Baldy and —. Report of Committee on Use of Mammary and Thyroid Extracts—William E. Moseley. The Abuse of the Curette in Puerperal Fever—Robert A. Murray. Surgery of the Ovaries—Fernand Henrotin. Clinical Data Bearing upon Tubercular Peritonitis—Egbert H. Grandin. Thrombosis following Celiotomy in Aseptic Cases—Henry C. Coe. Surgery of the Ovaries and Tubes per Vaginal Incision—William H. Wathen. Use of Iodoform Gauze in Pelvic Disease of Women—William R. Pryor.

. PROGRAMME OF THE FIRST MEETING OF RECTAL SPECIALISTS, AT COLUMBUS, OHIO, JUNE 6-9, 1899.—The Importance of Giving Rectal Diseases Special Study—Joseph M. Mathews, Louisville. Pruritus Ani—James P. Tuttle, New York City. Surgical Treatment of Non-Malignant Stricture of the Rectum—Joseph B. Bacon, Chicago. A Modification of Whitehead's Operation for Hemorrhoids—Samuel T. Earle, Jr., Baltimore. The Proctoscope as a Factor in the Diagnosis and Treatment of Simple Ulceration of the Rectum—Leon Straus, St. Louis. A Consideration of the Various Forms of Ulceration of the Rectum—Lewis H. Adler, Jr., Philadelphia. Rectal Carcinoma: Excision and Subsequent Colotomy—B. Merrill Ricketts, Cincinnati. The Limitations of the Kraske Operation—Charles C. Allison, Omaha. The Act of Defecation—Thomas Charles Martin, Cleveland. Constipation Considered from the Standpoint of the Proctologist—A. Bennett Cooke, Nashville. Paper and Exhibition of New Instruments—S. G. Gant, Kansas City. Rectal Adenomata—William M. Beach, Pittsburg.

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ORIGINAL COMMUNICATIONS.

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THE TREATMENT OF LABOR IN ABNORMAL PELVES.<sup>1</sup>

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BY

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IN accepting your kind invitation to read a paper before the Society, I have not attempted an extensive literary research upon this subject. It has seemed to me that I might better interest you by narrating experiences hitherto unpublished, and by placing at your disposal for comparison and criticism the records of work done in the Jefferson Maternity during the past two years. While the material at my disposal has not been large, it has been sufficient, I think, to afford means for the study of this important question.

As regards the diagnosis of abnormality of the pelvis, this has been made by pelvimetry, palpation, and vaginal examination. So far as is possible, each patient is submitted to pelvimetry when she applies for admission. In out-patient practice the pelvis is also measured whenever possible.

The diagnosis of disproportion between the child and the pelvis is evidently of much greater importance than the diag-

<sup>1</sup> Read before the Gynecological and Obstetrical Society of Baltimore, March 14, 1899.

nosis of the absolute size of the pelvis. It is not the number of inches or centimetres in the dimensions of a given pelvis which interests us, but the question as to whether the pelvis is of sufficient size to permit the passage of the child. The diagnosis of disproportion is made largely by palpation, and, if necessary, by palpation under an anesthetic combined by vaginal examination during the first stage of labor. Especial attention is paid to the question of the engagement of the presenting part.

On several occasions statistics have been published regarding the frequency of pelvic abnormality among American women. The patients whose study forms the basis of this paper were of various races and conditions, and represented fairly the mixed population of an American city. It is evident that, to obtain an accurate idea of the frequency of pelvic abnormality, not simply those in which difficulty occurs in labor must be measured, but that all the cases available must be examined by this method. The results of our examinations were as follows:

Total number examined.....	466
Pelves of average size.....	313
Rachitic .....	29
Flat.....	28
Obliquely contracted.....	1
Justo-minor.....	61
Justo-major.....	34
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Abnormal.....	153—32%

We may here appropriately consider in what consists an abnormality of the pelvis. In this study we have regarded a variation from average measurement of two centimetres in the antero-posterior diameter, or of two centimetres in two other diameters, as constituting a pelvic abnormality.

Attention must be called to the very interesting methods by which Nature effects delivery in contracted pelves. In women who move about, and especially in those who work during pregnancy, the contraction of the uterus and abdominal muscles brings the presenting part to the pelvic brim. Partial engagement occurs, in many cases of contracted pelvis, comparatively early in pregnancy. If no obstacle is offered by an impacted bowel, and if the age of the patient be such that the joints of the pelvis are movable and her physical strength be good, a process of accommodation ensues, which brings the child into the pelvis and sets up labor before the usual termination of pregnancy. The child is thus delivered before it becomes



too large for the mother, and the mother is spared the dangers of labor in contracted pelvis. This, however, can only happen in young and comparatively healthy women, and especially in those who exert muscular force.

Acting upon this observation, we are accustomed to admit patients with contracted pelvis into the Maternity as early as the seventh or eighth month of gestation. The patient is urged and is required to do housework, and, at the suggestion of my head nurse, these women are directed to do considerable work in a kneeling posture, such as scrubbing floors and stairs and assisting in the laundry. They are not allowed to lift heavy weights, but active exercise in the semi-prone position is encouraged. The condition of the bowels is very carefully watched in these patients. They are frequently and thoroughly purged, for two reasons: first, to remove the mechanical obstacle which impacted feces may furnish, and, second, to empty the intestine of the *bacillus coli communis*, whose presence may complicate an important obstetric operation. The urine is carefully studied, and the patient's elimination is stimulated by frequent warm baths. She is not allowed to eat much meat, but is fed liberally upon other food, and especially upon milk. At intervals of about two weeks palpation is practised, and the engagement of the head or its failure to enter the pelvis is noticed. When the head does not enter the pelvis at eight months in these cases, the decision to induce labor or to allow the patient to go on to term must be considered.

If the disproportion between the head and the pelvis is very considerable, and at thirty or thirty-two weeks of gestation the head fails spontaneously or under pressure to enter the pelvic brim, the induction of labor is declined. If, however, the head dips into the pelvis and the vertex descends at this period, the patient is again examined in about two weeks, and, if engagement and descent have begun, the induction of labor may be properly considered.

Where induced labor is declined the patient is allowed to go on as long as she will in pregnancy. Some of these patients undoubtedly go considerably over the usual period. She is kept under careful observation, and any failure in nutrition is corrected, if possible, by appropriate tonics. When she comes into labor every effort is made to favor the engagement and descent of the head. The bladder and bowels are emptied, the membranes are not broken, the patient is placed in favorable postures and her strength is carefully preserved.

The method of delivery chosen depends not only upon the presence or absence of engagement, but upon the size and development of the birth canal. In diagnosing the engagement of the head, attention is called to a common source of error, namely, exaggerated lateral obliquity of the cranium with presentation of the parietal bone for the vertex. Should doubt exist, the patient should be given a small quantity of chloroform and a thorough vaginal examination should be made.

If the head of the child is found to dip into the pelvic brim, the vertex being lowest, dilatation being complete, and the general condition of the patient good, the operator must consider whether or not it is justifiable to attempt the delivery of the child by forceps. In these cases we have had good results by placing the patient in Walcher's position, applying Tarnier's forceps to the sides of the head, extracting the child, and, in cases where the vagina and pelvic floor were ill-developed, we have bisected the tissues by double episiotomy, thus saving serious laceration, and closing the incisions with suture. Where the cervix was torn we have also applied suture. The age of the patient is an important factor in estimating the chance of success by this method of delivery. It is most successful in young women, in whom the pelvic joints are elastic, and in whom the pelvis is considerably enlarged by Walcher's position. In women over 30 it is doubtful whether Walcher's position is of much service.

In choosing symphyseotomy, we have selected those cases in which disproportion was evidently not marked, in which the genital canal was well developed and distensible, and in which vigorous labor pains or possibly a cautious use of forceps had failed to produce descent. In cases, however, where disproportion was considerable, where the birth canal was small and ill-developed, we have declined symphyseotomy and chosen abdominal section.

In effecting delivery by abdominal section, the choice between celiohysterotomy and celiohysterectomy must be made. In married women who do not request that the power of reproduction be removed, celiohysterotomy is to be preferred. Among those highly deformed, ill-developed mentally and bodily, and of uncertain morals, celiohysterectomy we believe to be indicated. Among the latter we have not found that an effort to solicit an intelligent choice from the patient is successful. Such women will choose craniotomy upon the living

fetus, having no sense of responsibility to the unborn child. If we heed at all the teachings of sociology, hope of improvement morally and physically in the mother is far less than the possibilities of evolution in the child. While the physician is not the arbiter of the child's future, he cannot disregard these facts in attempting to save its life. Surgically speaking, celiohysterectomy with intrapelvic treatment of the stump leaves little to be desired. In our observation it is among the most successful of all surgical operations performed upon women.

In the foregoing considerations we have supposed that the patient was in good condition and uninfected at labor. In case of infection the obstetrician is sometimes called upon to practise embryotomy, craniotomy, the Porro operation, or the total removal of the infected uterus. In our opinion none of these should be chosen in aseptic patients in good condition.

Among the total number of patients included in the foregoing statistics, the following obstetric operations were necessary for the safe delivery of the child:

Use of forceps.....	37
Version .....	19
Embryotomy.....	4
Induced labor. ....	12
Symphyseotomy.....	1
Cesarean section.....	6

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79—16%

Among the mothers so treated there was no death from septic infection or from hemorrhage. Eclampsia was the only cause of maternal death among these patients. Among the children, one child died of birth pressure. The children of the eclamptic mothers were stillborn.

Turning to the cases of abnormal pelves, we find that of the foregoing operations the following were performed because of some pelvic abnormality:

The use of forceps.....	6
Version. ....	2
Embryotomy.....	4
Induced labor.....	12
Symphyseotomy....	1
Cesarean section.....	6

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31—20%

As in the total number of mothers delivered by operation, so in those having abnormal pelves, no death occurred from sepsis

or hemorrhage, the only mortality being in cases admitted to the Maternity in a grave condition from eclampsia.

A review of these results shows that 31 operations were performed upon 153 women having abnormal pelves, or 20 per cent of cases having abnormal pelves required operation for delivery.

The results of treatment in these cases are precisely the same as the results of the total number of obstetric operations for contracted pelves which have come under my personal conduct. I have had occasion to perform Cesarean section eleven times upon women apparently uninfected and in fair condition. Of these 11 women, 10 recovered and 11 children lived. The mother who died perished from infection with the bacillus coli communis, autopsy demonstrating multiple ulcers of the intestine, extensive lymphangitis, and intestinal occlusion by masses of lymph. Cultures showed the cause of infection.

I have performed symphyseotomy four times upon uninfected patients in fair condition, in each case mother and child recovering and remaining well. So far as my experience goes, there is in the result of symphyseotomy, celiohysterectomy, and celiohysterotomy no difference in the success of each operation performed upon uninfected patients in fair condition.

Cesarean section may be utilized simply as a method of delivery and as a last expedient in complicated and infected cases. Thus I removed by Cesarean section a large male child from the body of its mother, who had just perished from eclampsia. This child survived its birth two weeks, dying of toxemia and acute nephritis. On another occasion I removed a dead fetus, with crushed skull, from an infected and exsanguinated woman who had been maltreated by attempts at forceps delivery. She perished shortly after the operation. On a third occasion a patient with tuberculosis of the hip joint, contracted pelvis, and eclampsia was admitted to the Maternity in a supposedly dying condition, her child having perished. As the pelvis was so highly contracted that embryotomy was impossible, I removed the dead fetus by abdominal incision. The operation was followed by a surprising improvement in the mother. She survived several days, ultimately dying of nephritis. In each of these cases postmortem examination leaves no doubt as to the cause of death.

My experience in symphyseotomy with infected cases has been very similar. In one patient, who had been subjected to fruitless attempts at delivery with forceps and had been



infected, delivery was accomplished by symphyseotomy and, although septic, the patient recovered; her child perished from septic inspiration pneumonia. On another occasion a woman having a severe double croupous pneumonia was brought from a tenement to the Maternity and delivered by symphyseotomy; she died of pneumonia, as proven by autopsy and culture examination of her tissues. Her child survived. In another instance a patient under the care of a negro midwife was brought to the Polyclinic Hospital exhausted in labor; she was delivered by symphyseotomy, but died of septic infection. Her child survived. From the contrast between the tenement from which the patient was taken and the care exercised in asepsis at the hospital, it is fair to believe that the patient was infected before admission. The fourth patient suffered from pernicious anemia and had contracted pelvis; she was delivered by symphyseotomy, her child surviving. She perished four weeks after labor, from exhaustion.

From my experience I am led to conclude that patients having abnormal pelves, who are placed under proper care before the beginning of labor, are favorable subjects for obstetric operation. The results of the various procedures which I have mentioned have been in such cases uniformly good. In cases infected before admission to hospital, or complicated by a profound constitutional disorder, such as eclampsia or pernicious anemia, obstetric operations do not improve the prognosis for the mother. They do, however, save many of the infants in such cases. Surgically speaking, celiohysterectomy with intrapelvic treatment of the stump fulfils all indications where the parents are not distinctly capable of producing further offspring advantageously. The tendency of obstetric surgeons at the present time is in the direction of the more frequent performance of this operation.

The treatment of labor in justo-major pelves requires but little interference, as a rule. Occasionally version must be performed when an unfavorable position develops. Hemorrhage is sometimes threatened through rapid emptying of the relaxed uterus. Among our patients there were no complications which required radical interference.

I may summarize the statements made in this paper as follows: 1. In 466 women examined by pelvimetry, 32 per cent had abnormal pelves. 2. Among these, 20 per cent required obstetric operations for safe delivery.

3. The mortality of these operations, which included the

range of modern obstetric surgery, was *nil* from septic infection and hemorrhage. One patient died from nephritis. The fetal mortality of these cases, from birth pressure or injury to the fetus during delivery, was 1.

4. The experience of the writer in Cesarean section and symphyseotomy includes 14 Cesarean sections and 8 symphyseotomies. The mortality rate of these operations for the mother was *nil* in cases where the patient was uninfected and sound before delivery. When death occurred in the mothers it was from previously existing streptococcus or pneumococcus infection, or from infection with the bacillus coli communis before labor, or from eclampsia. In the 14 Cesarean operations and 8 symphyseotomies, one child perished from inspiration pneumonia, its mother being infected before admission to the hospital.

5. In our experience, celiohysterectomy with intrapelvic treatment of the stump, celiohysterotomy, symphyseotomy, forceps extraction in Walcher's position, version and embryotomy, in patients not infected before these operations were performed, have given excellent results.

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## THE SURGERY OF THE PUERPERIUM.<sup>1</sup>

BY

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THE puerperium may be practically defined as a variable period extending from the moment the placenta is delivered until such time as the mother shall have normally recovered from the shock and other immediate local and systemic disturbances incident to labor. The puerperium is a most remarkable and, from many points of view, the most interesting and important period of a woman's life. The wonderful process of gestation has been brought to a close. The changes accompanying the return of the genitalia, and indeed the entire organism, to a condition resembling the normal are among the most astonishing phenomena in physiology. A new function—lactation—

<sup>1</sup> The address in Surgery presented to the Illinois State Medical Society at its annual meeting, held in Cairo, Ill., May 16, 17, and 18, 1899.

is developed, by means of which the child is nourished and maintained. Extended detail is unnecessary. Suffice it to recall certain facts which show the dangers, often potential, but none the less important, to which the puerperal woman is exposed.

The process of involution creates an endosmotic flow which tends to favor invasion. The retention of blood clots in utero, which is normal, and the retention of placental remnants, which is adventitious, are factors which predispose to infection by furnishing a suitable soil for the development of microbes under conditions especially favorable for their culture. The traumatism, which vary in degree but are inevitable, may themselves require attention, and in any event will open up additional doors of entrance for the reception of the pathogenic bacteria which, according to recent observation, always infest the vagina. The strain to which the nervous system has been subjected, and the normal physiological changes incident to pregnancy, unquestionably impair the power of resistance and indirectly predispose to microbic propagation and the dissemination of their toxins. Moreover, lactation is not unattended with danger. Lesions of the nipples favor the entrance of microbes, and, according to certain French authorities, infection may also extend from the blood through the milk.

The danger of infection, then, is ever present in the puerpera. It is diminished by intelligent care, which consists in the aseptic conduct of labor, the maintenance of free bowel movements, the aseptic care of the nipples, and the judicious use of the breast bandage. It is especially diminished by eliminating all predisposing causes in advance. Gonorrhea, chancroid, vulvo-vaginal abscesses, syphilitic patches, and pus within the pelvis are certain to increase the danger of infection by furnishing an additional and an unusual supply of pathogenic bacteria. Ovarian cysts, the different anomalies of the bony pelvis or the soft parts, and abnormal presentations of the child interfere with the normal progress of labor and increase the danger of infection by favoring undue traumatism and tending to exhaust the patient by prolonging the strain upon the nervous system. These factors should be recognized before the advent of labor, but it is only possible to do so by examination and observation during the latter months of pregnancy.

Surgery means mechanical interference, which may be manual or instrumental. Its application during the puerpe-

rium has occasioned much controversy, for it is realized to what a great extent involution favors infection and how dangerous are all manipulations within the vagina or uterus. The question in most instances is one of election. Often it consists in a compromise. In all cases we must carefully weigh the evidence, and our judgment and experience must determine whether an examination is necessary or whether a surgical procedure offers a better chance of recovery than leaving the woman alone. I believe it to be the part of wisdom, when in doubt, to do nothing. I prescribe no surgical measure without definite indication. I would also caution against the vaginal examination of the puerperal woman without good reason—that is, without the reasonable expectation of finding some condition requiring interference. Too many women have suffered an extension of infection from thoughtless examination. At the same time it must be admitted that many and many a woman has died because her medical attendant failed to interpret the symptoms presented and neglected to apply the proper surgical interference which alone could save life.

We will consider, if you please, these symptoms in detail. Realizing the danger of interference, we will try to determine, with a sufficient degree of accuracy to warrant definite advice, the conditions which render it preferable to examine the puerperal woman and oftentimes to come to her relief with consistent application of well-known surgical measures.

Postpartum hemorrhage is not always due to imperfect uterine retraction. There sometimes occurs a cervical laceration extending beyond the portio vaginalis and causing an excessive and alarming hemorrhage. Here surgical interference is imperative. Packing with gauze is often insufficient, and is always dangerous because it predisposes to infection. The hemorrhage should be controlled by repair of the laceration. In case the labor has been normal and the uterus is retracted so it can be distinctly felt above the symphysis, it is necessary, if there is continuance of undue hemorrhage, to properly examine the patient, for it is known that the hemorrhage may come from a lesion of any part of the parturient canal. This examination also enables us to determine the presence of a polypus, retained coagula, or placental remnants within the uterus.

It is realized that any examination or operation during the puerperium is a serious matter, on account of the very great danger of inducing infection or of causing an extension of the infection that may already exist. For this reason it is import-



ant to make sure of the expediency of an examination before it is undertaken; and for the same reason it is imperative, when the necessity of an examination has been determined, to see to it that as far as practicable aseptic conditions prevail. These results can rarely be obtained with the woman on the bed where she has been delivered. In case any examination is undertaken there is usually the expectation of finding some condition calling for operative relief. For this reason, if for no other, the patient should be placed upon an improvised operating table, so that she may be properly examined and may at once receive, under suitable surroundings, the benefit of any surgical measures it is thought best to apply.

In case of undue hemorrhage following labor, where the uterus is well retracted, the patient may be placed in the exaggerated lithotomy position upon a table, Simon's retractors may be inserted, and the parts may be inspected. In cleansing the vagina it is not well to use absorbent cotton, for it is rarely sterile. If blood is to be mopped away it is better to use sponges of sterile gauze held in forceps. A douche of a creolin solution or sterilized water is a valuable adjunct to all operations within the vagina. Retained blood clots or placental remnants will be removed by the finger or douche. A submucous polypus will be transfixed and cut away. If there is a well-recognized laceration of the cervix which is causing the hemorrhage, a curved needle carrying a silk suture will be passed through the superior corners of the laceration in the usual manner. If there is difficulty in passing the suture the lacerated portions may be seized with forceps to facilitate the entrance of the needle and the coaptation of the edges. Other sutures are then passed and tied and the hemorrhage is controlled.

Lacerations of the anterior and especially of the posterior vaginal wall are often overlooked. In all cases of tedious labor or instrumental delivery it is well to carefully inspect the vagina and portio vaginalis by means of retractors, with the woman in the exaggerated lithotomy or Sims position. The danger of infection by examination is less than the danger of favoring invasion by the failure to close the doors of entrance which are nearly certain to exist in consequence of undue traumatism. Moreover, it must be remembered that there occur lacerations of the pelvic aponeurosis or levator ani muscle with but a slight injury to the vaginal mucous membrane, and the importance of repairing these lesions is well understood. In

the class of cases mentioned lacerations should be suspected and looked for, and when found they should invariably be closed by means of sutures within the vagina. Care should be taken to pass the needle deep enough to include any severed muscular fibres or torn aponeurosis beneath the vaginal mucous membrane.

Lacerations of the perineum and the episiotomy wound should be immediately repaired very much in the same manner. It is often found that the perineal laceration is continuous with a laceration of the posterior vaginal wall. In such an event the suturing of the vaginal laceration should be continued upon the mucous surface of the perineum and two or three additional sutures should be passed through the skin surface, if that has been torn. Excessive injury of the perineum requires a modification of this technique. It may become evident that the laceration is too extensive to be successfully included in the sweep of the needle. It may appear that there is danger of undue constriction in case all the tissue is brought together by one suture. Under these conditions it is advisable to sew up the lacerations by layer or *étage* sutures, which are buried, all being placed within the vagina. By this method no undue strain is put upon any row of sutures and the cardinal principle of all perineal operations is conserved—the parts are really brought together in the position they occupied prior to the injury. The continuous suture, as recommended by Martin of Berlin, may be used if found more convenient. Here also the operation becomes successful and complete, for the parts are brought together in the same relationship that existed before the laceration occurred. Restoration of the perineum, when thus performed, really restores.

In case the perineal laceration includes the rectum a similar technique is recommended. The gut should be sutured by itself and the knots tied within the rectum. The perineal injury should be repaired by interrupted or continuous buried sutures, all passed within the vagina except two or three sutures which approximate the torn skin surfaces. The advantages of this technique are real and practical. The operation is done deliberately and by sight. The torn surfaces are approximated very much as would be done in an incised wound of the arm. The difficult and complicated methods of Emmet and others, while answering all purposes when properly performed, can be safely superseded by the simple plan of operating just described. Moreover, in case of infection the parts

do not all slough. If the rectal surfaces fail to unite there results a condition resembling the wound produced by the usual operation for fistula in ano. In course of time, by the application of peroxide of hydrogen or boracic acid, this wound will heal and the perineum will be restored.

In the consideration of cases of hemorrhage during the puerperium, and also when lacerations are suspected, the indication both for examination and treatment is self-evident and sometimes imperative. The state of affairs is different in the presence of infection or when its presence is suspected. The propriety of an examination should now be carefully considered, and the value of actual knowledge of all facts in relation to the pregnancy and labor becomes of importance. In many instances the patient will have submitted to no examination during pregnancy and the details of her labor will be a matter of surmise. Under these conditions all possibilities must be considered, the probabilities must be properly weighed, and all evidence procurable must be duly appraised to assist the judgment in arriving at a reasonable conclusion which shall indicate the best plan of treatment in individual instances.

If the conditions during pregnancy and labor are known, if no abnormal or intercurrent disease is present, if the uterus has properly retracted, if the placenta and membranes have been expelled in their entirety, if the urine is normally voided and the bowels act regularly, if lactation is well established and no appreciable lacerations have occurred, the advent of rapid pulse beat, chill, fever, and pain constitutes symptoms which can only indicate infection. They call, in my judgment, for examination, and my experience teaches me that such examination will rarely be made in vain.

The condition of lochiometra is often present and not always recognized. There is apt to be a diminution in the quantity of the lochia, which are usually offensive. The uterus is tender on pressure, the temperature is elevated, and the patient complains of headache. The escape of the lochia is interfered with. There is saprophytic infection, producing sapremia by ptomaine absorption. A uterine douche of a creolin solution washes away blood clots and the systemic symptoms subside. The uterus, which is usually somewhat displaced, returns to a normal position and involution continues. There is but slight opportunity for a difference of opinion here. There is no need of a curette, for blood clots alone are within the uterus. A douche dislodges them perhaps better than can be done in any

other way and certainly with much less danger. If it be asserted that the patient would do better if let alone, I maintain that the condition is potentially serious, because a weakening of the vitality of the tissues may prove a preparation of the soil for pathogenic cocci which otherwise, by transmigration of leucocytes, might have been rendered harmless.

The symptoms of infection are well known and easily recognized; their interpretation may be difficult and sometimes, for the moment, impossible. It is often a simple matter to say that infection exists; it may require the exercise of the highest judgment and the most mature experience to determine the best thing to do. The special difficulties met with during the puerperium have been referred to. The danger of increasing the infection will sometimes favor the postponement of an examination, and the danger of air embolism, metastatic-abscess formation, and an interference with the beneficent action of the phagocytes will make us hesitate before resorting to manipulations or the use of instruments. But our greatest difficulty comes from ignorance of the facts. In too many cases we know nothing of the antecedents of the patient. For this reason our treatment, if judicious, may be but tentative, and unquestionably we often grope in the dark because we fear to do harm and because we have no means of learning of conditions except by the observation of their results.

The puerperal woman, if normally delivered, experiences a feeling of relief and satisfaction that her labor is happily concluded. Her pulse is full, strong, regular, and, above all things, slow. Her temperature under aseptic conditions should rarely reach 100° F., and in many instances will remain below 99° F. She should urinate without inconvenience, rather more frequently than usual, and her bowels should move the second day and every day thereafter. From the first she should nurse her child at regular intervals without appreciable discomfort, but especially after the flow of milk is well established. The nipples should not be sensitive nor should the breasts be allowed to become unduly distended. The lochia have always a characteristic odor, but they are rarely offensive unless there is interference with their escape, retention of blood clots, placental remnants or membranes, or infection of wounds of some part of the parturient canal. The uterus, when palpated above the symphysis, should not be tender. The patient naturally feels some fatigue and may be thirsty from loss of blood. Rest and enough water to quench thirst should in a day or



two, when accustomed to her new surroundings, restore the patient to her former condition of health.

Any departure from this normal type of puerperal convalescence should excite apprehension. It does not always mean that there is infection, but it does often mean that something should be done. In case of increased pulse rate, chill, fever, or abdominal tenderness, with or without offensive lochia, it is to be remembered that these symptoms may be due to a distended bladder or rectum and may all disappear when these viscera are emptied. The symptoms may also be due to a distended breast and subside when the breast bandage is properly applied. The maintenance of a normal puerperal convalescence is indispensable to the diagnosis of conditions requiring surgical interference. Any deviation from the standard should first of all receive attention. It is surprising and most gratifying to observe how uterine tenderness will diminish, fever will disappear, and all untoward symptoms will often improve by the introduction of a catheter, the administration of a cathartic, or the application of the breast bandage,

In puerperal cases that have been under our charge from the first we know if normal delivery has occurred under aseptic conditions, and, if we are alive to our responsibility, we should have ascertained by proper examination during pregnancy if there exist conditions which can unfavorably influence the course of a normal convalescence. In other cases where we are ignorant of these important matters we should, in most cases, at the outset consider the conditions of bladder, rectum, and breast, and rectify any irregularity of function before we seek to determine the advisability of any interference, or indeed submit the patient to an examination.

Assuming, then, that convalescence is apparently normal or that the simple measures indicated do not reduce pulse rate and temperature, restore function and diminish pain, we are justified, when symptoms of infection persist, in an examination with a view of determining if local lesions are discoverable of sufficient importance to stand in a causal relationship with the symptoms observed.

If suppuration has occurred around stitches that have closed lacerations of vagina or perineum, the pus should be evacuated, the parts treated with peroxide of hydrogen, and sometimes the stitches should be removed. In cases where no operation has been undertaken it is folly to attempt the closure of wounds already infected. Once pus has formed, its escape should be

facilitated and not hindered, as it is when suppurating surfaces are brought together. The infected wounds should be cleaned with peroxide of hydrogen and dusted with boracic acid. In a week's time, in most instances, vulvar and vaginal ulcers become free from pus and healing takes place by granulation. Vaginal douches in these cases are unnecessary and may do harm. If the examination reveals no infected lesion of the portio vaginalis and there is no uterine or pelvic tenderness, the ulcerative condition of vaginal wounds may reasonably be regarded as the cause of the symptoms noted.

Infected lacerations of vulva and vagina must chiefly be differentiated from diphtheria, erysipelas, chancroid, and various syphilitic manifestations. The venereal lesions are, of course, recognized prior to labor, if there has been an examination of the patient. Chancroid is often discovered as soon as the nurse washes the vulva, and the ulceration will usually be more extensive than would be found in a laceration of the vulva directly after labor. Syphilitic lesions consist, as a rule, of condylomata, sometimes more or less ulcerated. The history and the occurrence of lesions elsewhere on the body, or the recognition of the results of former lesions, will permit the establishment of the diagnosis if the possibilities are remembered. When the perineum is lacerated bilaterally and the median portion projects forward there may be a suggestion of a condyloma, especially if there is ulceration. Diphtheria is easily differentiated when facilities for bacteriological research are at hand. Usually the concomitant symptoms in this disease and in erysipelas are of such a character that there is little doubt of the diagnosis.

In the absence of the lesions mentioned it becomes necessary to look further in our examination. The portio vaginalis may have been extensively torn during labor. Unless undue hemorrhage calls for immediate inspection of the parts, it is probable the lacerations will escape detection unless septic symptoms make an examination proper. Even when multiple incision of the cervix has been practised it is usually considered best, unless hemorrhage is excessive, to trust to aseptic conditions to secure healing rather than run the risk of infection by attempting an immediate operation. A trachelorrhaphy, as Dührssen has pointed out, is a small price to pay for a living child. When an ulcerative condition of the portio vaginalis exists it is, in my opinion, plainly evident that energetic treatment, as Leopold recommends, by means of chloride of zinc paste, is not

the best method to be employed. Saft has recorded a series of cases where the parts were let alone; the ulcers healed and systemic symptoms subsided, very much as occurred when topical applications were made. Nevertheless the use of peroxide of hydrogen, tincture of iodine, powdered boracic acid, or ichthyol in glycerin assists the healing of the ulcerative surfaces without favoring the formation of scars or interfering with the phagocytic barrier and thus causing an extension of the invasion.

If there is found no lesion of that portion of the parturient canal which is visible by means of the speculum, it is probable that the infection in most instances, but not in all, exists within the uterus or has extended from the endometrium, usually through the placental site. Infection extends chiefly in two ways. It may occur by continuity of epithelial surface through the tube to the ovary and to the peritoneum adjacent to the fimbriated extremities; it may occur through the veins and lymphatics from the placental site, or from a lesion of any portion of the parturient canal. It must be remembered that it may also occur from any pre-existing focus, wherever located, and that in any individual case it may occur simultaneously in one or more of the several ways named. Furthermore, the occurrence of the fulminating type of sepsis must not be overlooked. In these unfortunate cases it is assumed that the microbic invasion is of so virulent a character that the patient is soon overcome by the intensity of the infection. For our purpose these cases may be disregarded. Contemporaneous medical science offers no remedy. Prochownik and others recommend doing nothing, for all attempts at treatment they regard as so much additional torture. This advice should be accepted under protest. At the same time it must be admitted that further observation and continued study along the lines of bacteriological research alone can give us hope of some day accurately determining the indications for common-sense treatment in this serious class of cases.

Infection of the endometrium may be putrid or septic, that is, it may be due to bacilli or cocci. If the labor has been normal and aseptic and there is a development of septic symptoms, we realize that, in the absence of some unusual complication, only infected blood clots are within the uterus, and we advise a uterine douche of a creolin solution. Often the symptoms subside at once. In other cases, especially where we are ignorant of the details of the labor, the uterine douche produces but

transient amelioration and the question of further operative procedure arises.

It is well to realize the serious state of affairs that now confronts us. It is important to remember the course of Nature's reparative efforts, for otherwise we cannot appreciate the full extent of the danger of injudicious interference. On the one hand we have an infected mass within the uterus. If it remains it is a continuous source of infection. On the other hand curetting may break down the defensive barrier erected by phagocytic reaction and new avenues of entrance for pathogenic bacteria may be opened up. Instrumental procedures within the uterus may favor embolism or metastatic-abscess formation. When the details of labor are known the uterine douche is usually sufficient; at the same time there is always the possibility of a placenta succenturiata, although the existence of this anomaly is usually shown by undue hemorrhage. The same symptom is apt to occur when placental remnants are retained. Nevertheless this symptom may be wanting, and in the absence of an exact history we may suspect the presence of a decomposing mass within the uterus. Our course of action is theoretically simple; practically it is most difficult. We wish to remove the source of infection without interference with Nature's process for the limitation of infection. If we can feel with our finger in the uterus a mass which is not removable by the douche, we are justified, when septic symptoms persist, in attempting its removal by the finger or by curetting.

After abortion the decidua may be partially detached but still retained within the uterus. In such an event it is well to remember that the presence of infection is of more importance than the presence of retained secundines. Of course it is advisable to secure the emptying of the uterus in every case of abortion. The retention of membranes furnishes a suitable soil for microbic development and is a mishap greatly to be deplored. Nevertheless, when such retention occurs, frantic attempts to empty the uterus immediately are irrational in the extreme and likely to do harm. In a few days the decidua may separate and the mass within the uterus can perhaps be easily removed with the finger. If infection takes place there is but one course of action—the secundines must be removed in their entirety. In most cases dilatation and curetting are necessary.

After labor the case is different, for the conditions are not the same. Here we are in many cases more apt to be in



doubt as to the exact state of affairs within the uterus. We can appreciate, in cases we have delivered, the probability of retention of placental remnants, and the uterine douche removes in many instances the entire contents of the uterus. In other cases it is often possible to explore the uterine cavity with the finger or with the blunt curette, which is little more than an extension of the finger. By these means the uterine contents can usually be removed without violence to the phagocytic barrier, which becomes of a more permanent character every day that elapses after birth.

When the infection has extended beyond the uterus our plan of treatment is radically different. The phagocytic barrier may now be disregarded, for it has failed in its object. It has not kept the infection within limits. Its importance is now secondary to the importance within the uterus of a focus of infection, which must be removed, almost at all hazards. The possibility of embolism and metastatic-abscess formation will be remembered, but we will, above all things else, very thoroughly understand and appreciate the fact that the source of the infection is still within the uterus and that the chief endeavor in our treatment must consist in its removal. For this purpose I believe the sharp curette is especially indicated. The danger of injuring the phagocytic barrier is now of minor, almost insignificant, importance. If possible the source of infection must all be removed, and the endometrium must be regarded as a septic wound to be treated by peroxide of hydrogen, antiseptic douching, and possibly by irrigation and drainage.

Extension of infection beyond the uterus occurs, as already stated, by way of the epithelium of the endometrium and tube to the peritoneum, or by means of veins or lymphatics through the placental site or through some wound of the parturient canal. In either case, if the invasion progresses, the involvement of the peritoneum is the ultimate outcome and the most serious result. In practice we recognize this extension by the persistence of septic symptoms, tenderness in the vaginal fornix which is in relationship to the placental site, and by a feeling of induration on bimanual examination. Often these symptoms subside when the endometrium is curetted. At other times they persist and we await the outcome with much anxiety.

I have already said that when in doubt it is the part of wisdom to do nothing. I now say that when pus is present it

should be evacuated. I will further say that if it is suspected, if fluctuation is noted in either fornix, the needle of a large syringe may often be used for exploration.

Facts are here more important than theories. We may think as we like regarding the etiology and pathology of these conditions. I know that following labor and abortion pus very often is found in what has been called the subperitoneal cavity of the pelvis—that is, the cavity bounded below by the levator ani muscle with the pelvic aponeurosis, and above by the peritoneum. In more than a hundred cases I have found it there.

When septic symptoms occur during the puerperium and the infected uterine contents have been removed, it may happen, under the medicinal and topical treatment already described, that all such symptoms may disappear. Should they persist, in the absence of intercurrent disease we may expect a thrombosis, often followed by a phlegmasia or by embolism or metastatic-abscess formation, or there may ensue an acute infection of the peritoneum or suppuration somewhere within the pelvis. The latter is the most frequent sequel of infection. It is the most amenable to treatment, but unfortunately is often overlooked. I believe this is because it is not often looked for.

Where infection has extended and septic symptoms persist despite curetting of the uterus and the treatment already mentioned, it is well to be on the alert for pus. Fluctuation in either vaginal fornix, together with fever and other septic symptoms, warrants an exploration by the vagina with a large hypodermatic needle. Where fluctuation is deep-seated the vagina should be cut, and close to the uterus lest the ureter be injured. The finger will then often feel the abscess cavity or the needle enter it. In either event the abscess should be treated here as elsewhere in the body. Drainage tubes, packing with gauze, irrigation or topical treatment will remove all pus, make the walls of the abscess cavity fall together and ultimately obliterate it.

Where the case is seen late in the puerperium there may be but little difficulty in recognizing the pelvic abscess, if it is looked for. It may present just above Poupart's ligament and may profitably be incised and drained there. It may be easily accessible from the vagina, so that an incision near the uterus may secure free evacuation of pus. It may be advisable to establish through-and-through drainage, but at all events the incision must be timely, the drainage adequate, and consistent

means must be used to secure the healing of the abscess cavity.

This plan of treatment is criticised by certain gynecologists of experience. They claim that the operation is incomplete; they say we had better do an abdominal section and remove the walls of the abscess cavity as well. Whatever may be the value of this objection in many gynecological cases, it does not, in my opinion, apply to most cases of pelvic abscess which occur during the puerperium. The process of involution, now under way, is a potential element of danger, and it must further be admitted that our knowledge of the actual extent of the invasion is necessarily imperfect, so that our diagnosis is never complete. Under these conditions I believe, as already stated, that no operative procedure should be undertaken without positive indication. I furthermore believe that every surgical measure should be as simple as possible, consistent with the end in view. Our experience with appendicitis has taught us the value of operating during the "time of peace."

We often diagnose peritonitis when pain, tenderness, and tympanites occur in any portion of the abdomen in connection with the usual symptoms of infection. Sometimes all symptoms subside when the endometrium is curetted or douched and free catharsis is secured. Often all symptoms referable to the peritoneum will disappear when an extraperitoneal abscess is emptied. Extension of infection to the peritoneum usually occurs by way of the lymphatics. When it takes place along the parietal peritoneum there is developed the condition known as ectoperitonitis, which is an infection of the attached side of the peritoneum. There are present the usual symptoms of infection, and in addition there is abdominal pain and tenderness on pressure. In pronounced instances the thickness of the abdominal wall will be appreciated and suppuration will be recognized by careful palpation. The abscess in ectoperitonitis is extraperitoneal and is to be treated by incision, and, if necessary, by drainage and irrigation. The condition is similar to cases of abscess formation sometimes observed in the abdominal wound following celiotomy. Occasionally it may be advisable to make two incisions several inches apart and to pass a perforated rubber drainage tube from one opening to the other beneath the muscles of the abdominal wall. With this tube in place it is possible to inject peroxide of hydrogen and to properly irrigate and drain the abscess cavity.

Cases occur where the infection of the peritoneum is limited

and the peritonitis that results is circumscribed. When suppuration supervenes the abscesses are walled off from the general peritoneal cavity, so that they are really extraperitoneal. Such abscesses are often observed in connection with the tube, ovary, or appendix, and their treatment is the same as that of other extraperitoneal abscesses. They occur in connection with any abdominal viscus or between kinks of intestines. When recognized they must be incised and drained, and great care must be taken that adhesions which wall off the general peritoneal cavity be not broken down. It sometimes happens in the course of an infection of the peritoneum that several abscesses will form, one after the other. They must be evacuated separately, and great care must be exercised not to break down adhesions. Whenever circumscribed pus collections occur in the peritoneal cavity they must be evacuated, in case an extraperitoneal operation can be performed. Their evacuation must also frequently be attempted when an extraperitoneal relationship is not already demonstrable. If, in the course of a peritonitis, an abscess can be diagnosed by palpation and by the presence of severe symptoms which indicate a serious infection of the peritoneum, it is not only justifiable but advisable to make an abdominal section and to proceed to the evacuation of the contents of the abscess. In case there is no adhesion to the parietal peritoneum it may be possible to stitch the wall of the abscess cavity to the abdominal incision. Otherwise a Mikulicz drain serves to maintain its extraperitoneal character until adhesions form, as they do very rapidly, to protect the general peritoneal cavity. In certain instances, after the belly is opened, it may be found that it is possible to drain the abscess through the vagina. In such an event the patient is immediately placed in the exaggerated lithotomy position, a vaginal incision is made, and a drainage tube is inserted, the operation being greatly facilitated by steadying the pelvic contents by the hand passed through the abdominal incision. When extensive and firm adhesions are noted this method is preferable, even if evacuation through the abdominal incision is possible. It must be admitted that abscesses which form within the peritoneal cavity are not always fatal. It is true that collections of pus between kinks of intestines may become encapsulated and to some extent absorbed, but it must not be forgotten that the adhesions that result are themselves a constant menace to life. It is hardly worth while for a patient



to recover from an infection of the peritoneum if she is to die soon afterward of intestinal obstruction.

Other forms of peritonitis are less amenable to consistent surgical treatment or to treatment of any kind. In the fulminating form the acute bacteriemia is so extensive that the peritonitis that may coexist is but an incident, and death occurs before any marked pathological changes take place in the peritoneum. In general septic peritonitis, or diffuse peritonitis, as some authors prefer to name it, there is usually an infection from the placental site through the lymphatics, often of considerable extent and great severity. The lymphatics of the uterine mucosa are true lacunæ. Each of the three layers of the uterine muscle contains lymphatics which anastomose freely with the lymphatics of the mucosa as well as with the subserous vessels. All these lymphatics are in a more or less direct communication with what Ranvier calls the "lymphatic wells" directly beneath the peritoneum. There is also, as Ludwig has demonstrated, a communication between these subperitoneal lymphatics and the lymphatics just underneath the pleura. This disposition of the vessels explains the frequency of the extension of infection from one great serous cavity to the other.

When peritonitis supervenes in the course of a septic infection, our plan of treatment, in the absence of localized suppuration, which is clearly recognized, is largely symptomatic and often most unsatisfactory. We realize that we have to deal with the effects of an extension of infection. If there is within the uterus an infected mass it must be removed, and in any event an antiseptic douche will be given. If there is suppuration in relationship with the parturient canal, it must receive attention. If there is an abscess in the areolar tissue about the uterus, it must be evacuated. If pus forms within the peritoneal cavity it must be removed as already explained. Further than this surgery as yet has but little of value to offer in the treatment of peritonitis occurring during the puerperium.

There are, however, certain matters in connection with the treatment of peritonitis which must be constantly borne in mind. There are relative indications. There are complications that demand immediate intervention. There are conditions where an operation offers the only chance for life and where the patient will surely die unless she is saved by surgical

procedure. Death may occur anyway. It must occur, under certain conditions, without prompt relief.

The treatment of peritonitis to-day does not consist in an attempt to jugulate the inflammation by excessive doses of opium. Pain is reasonably controlled by the ice coil and anodynes, but it is understood that the infection is the factor of chief importance. By the means already mentioned, supplemented by the application of serum therapy and attention to the symptomatology and general nutrition, it may be that the infection will exhaust itself and the patient survive. At the same time it is imperative to be alert to the development of complications which are invariably fatal and which demand immediate intervention.

The first matter of importance in this connection is that the bowels must act regularly. I do not mean that they must act every day, but I do insist that nothing shall occur which interferes with normal peristalsis to an appreciable degree. With severe abdominal pain, with nausea and vomiting, with excessive tympanites, with the ingestion of but a small quantity of nourishment, often in concentrated form, it is not reasonable to suppose that there should be a free fecal discharge every day. At the same time any indication of obstruction must occasion serious anxiety. With the bowels inflamed we should understand just what may happen. The tympanites and tenderness may prevent us from recognizing a volvulus, an intussusception, or an obstruction caused by adhesions. We must not wait for stercoraceous vomiting. We must be prepared to act as soon as there is evidence of obstruction.

Now, to state what may be considered such an evidence and just what symptoms will warrant an operation is a very difficult matter, not attempted, except in a general way, by any author that I have read. If the treatment of peritoneal infection begins by giving salines, calomel, enemata of glycerin and water, or concentrated solutions of sulphate of magnesium, we will usually succeed in making the bowels move. If we fail it may be necessary to flush the colon. If these means are unavailing I can hardly conceive of a case where an exploratory incision would not be indicated, especially if the gut be full of wind, which prevents the palpation of any abdominal tumor which might be caused by some form of obstruction. In the cases that I have seen I have never had any special difficulty in securing a bowel movement by the means indicated.

When obstruction would occur in the course of time there would be obstinate constipation and an exacerbation of all symptoms. Occasionally I have been able, under anesthesia, to locate the obstruction; but, if that is impossible, I would still advise an exploratory abdominal section, for the chances of a spontaneous recovery when peritonitis exists are problematical in the extreme.

Excessive tympanites has never seemed to me to be of itself an indication for surgical interference. It will persist after all other symptoms have subsided, sometimes causing much inconvenience. When there is general peritonitis I do not recommend an operation unless there is danger of obstruction of the bowels, or the presence of pus or other fluid in the peritoneal cavity is unmistakably determined. When a tumor can be recognized, either in connection with a viscus or occurring between kinks of intestines, it is in most cases advisable to interfere, for there is great probability of pus or adhesions, which in either case demands surgical intervention. The statistics of abdominal section in general diffuse peritonitis are most unsatisfactory. An operation in such cases, except under the conditions stated, will very rarely prove successful, as I know to my sorrow.

It would seem, from this consideration of the extension and sequelæ of infection, that our treatment essentially consists in the recognition and management of pus. This is practically true. Beyond the proper evacuation of abscesses and the intelligent care of inflammatory complications, the treatment is very largely hygienic and symptomatic. One operative procedure remains to be considered: we must discuss the indications for hysterectomy.

It is manifest at once that the indications for so serious an operation should be plain and unmistakable. It must be understood that the dangers of removing the puerperal uterus are much greater than in the case of the ordinary operation. The puerperal uterus is large and abundantly supplied with blood vessels, which are themselves hypertrophied. Of itself the process of involution favors infection, and the technique of the operation is more difficult during the puerperium. Moreover, the thought of hysterectomy at this time is repugnant. The patient is fulfilling her noblest function. Hysterectomy will now leave her often indifferent to the conjugal embrace, sexless, and incapable of propagation. Her position becomes anomalous. She is often condemned to an unhappy existence,

not unknown to result in melancholia with suicidal tendencies.

These considerations, of course, are of minor importance if it be definitely determined that hysterectomy alone will save life. As would be expected, a review of the recorded cases shows an alarming mortality, and in many instances we are forced to acknowledge that where the patient recovered other less radical treatment might probably have sufficed.

Retained placenta is not an indication for hysterectomy, although Schultze amputated the corpus uteri when infection occurred in such a case. Consistent asepsis may succeed in preventing infection, even if the placenta be adherent, and its removal, when infection occurs, appears a more rational procedure than hysterectomy. Sippel, who was the first to do a suprapubic amputation for sepsis, asserts that the operation should be done for sapremia when the putridity is limited to the uterus and no systemic infection has occurred. He tells us that the cervix need not be removed, because the interior of the uterus alone is the source of infection. He also explains that vaginal hysterectomy is too dangerous and that the fetid contents of the uterus can easily infect the peritoneal cavity. In his case, which, like Schultze's, was fatal, we are told that the cervix was free from infection and also the parametrium and perimetrium. In my judgment it is not unreasonable to infer that a uterine douche or curetting would have given his patient a better chance for recovery. Had a thrombosis or phlegmasia developed, or had an abscess formed in the tissues about the uterus, or even elsewhere on the body, it is probable the interests of the patient would have been better conserved by less radical measures.

Wybe Ypma, of Freiburg, reported a case in 1895 which shows, to my mind, a very clear and comprehensive statement of measures always to be condemned. The twelfth day after labor a woman who had been delivered without having been examined developed septic endometritis from retention of placental remnants. These were removed and a uterine douche of diluted chlorine water was given. Soon afterward the patient had a chill and her temperature rose. She now was subjected to permanent drainage by means of a glass drainage tube, and the douches of diluted chlorine water were given every hour, which resulted in an increase in the severity of all symptoms. The question of extirpation arose, and the following remarkable presentation of the situation was submitted: "Either the



septic process is limited to the corpus uteri, then is extirpation to be advised; or there is already a general infection, then the operation does not help, but it also does no harm." The logic of this statement seems to have been irresistible, for the operation was performed and the patient died. The autopsy showed myocarditis, septic thrombosis of the left iliac and crural veins, and pleuritis. Strange to say, the outcome in this case induced the author to advise operation when the septic process is limited to the uterus. He tells us, in conclusion, that in his case the parametrium was free from infection.

It is hardly necessary for me to expose the sophistry of the argument advanced or to expatiate on the errors of treatment in this case. The protective influence of the phagocytic barrier was disregarded. The danger of increasing the extension of infection by operative procedure was apparently not thought of. The hourly douche and the permanent drainage were most unfortunate measures. One uterine douche, followed perhaps by the use of peroxide of hydrogen, or possibly the intelligent employment of the curette, would have been enough. Indeed, I am not so sure that it might not have been the best treatment to have followed the advice of Schrader, of Hamburg, who asserts that the puerperal woman should stink herself out.

Freund, of Strassburg, found in the postmortem examination of pyemia cases an isolated thrombo-phlebitis of the ovarian vein on the side where the placenta was situated. This induced him to operate on two cases by cutting off the broad ligament and vein. Although both patients died, he recommends the operation when there is intermittent fever and pain in the broad ligament and placental site. In this opinion, however, he stands alone.

Lusk spoke on this subject some two or three years ago. He called attention to the symptomatology of infected thrombi, telling us that the attack is ushered in by a violent chill, followed by a high fever. Then, as we know, for perhaps thirty-six hours the patient seems perfectly well, but another chill follows. Lusk asks if it is not desirable after the second chill, when there is no longer doubt of the diagnosis, to perform hysterectomy and thus to prevent the spread of the pyemic processes. Baldy replies by asking why we should wait for the second chill. He collects, in May, 1895, nineteen such operations, with seven successful results. In most of these cases more or less suppuration was found in the uterine walls. He remarks that all the seven recoveries were so many cases

snatched from inevitable death—a statement, by the way, in which I cannot concur.

Phlebitis and thrombosis are not, in my judgment, suitable cases for hysterectomy or other operation. Hirst insists that in every instance they do better without operation. They are usually associated with phlegmasia alba dolens and usually recover. When thrombi are infected and dislodged, when metastatic abscesses have formed, our attention should be directed to the general condition of the patient and the care of the local abscesses, for the mischief is done and the focus of infection within the uterus is no longer the only important factor.

There are cases where hysterectomy is unquestionably indicated. When suppuration occurs in the subperitoneal cavity of the pelvis we sometimes find abscesses to either side of the uterus and in the cul-de-sac of Douglas. The uterus is apparently surrounded by pus. Our vaginal incisions show large collections, and in order to provide proper drainage we may think best to remove the uterus. We may be influenced to this decision by the fear that other abscesses are present between kinks of intestine or that the uterus itself is the seat of pus collections.

Then, again, when the symptoms warrant an abdominal section, we may find behind the uterus, as Penrose did in one case, an accumulation of several ounces of pus encysted by the adherent uterus, omentum, and intestines. The uterine tissue may be as soft as cheese, so that the finger may easily pass through the uterine wall. It is needless to say, under these conditions, hysterectomy is no longer an operation of election, but becomes imperative.

Here are two conditions, then, where hysterectomy is indicated. I know of no others—that is, no other practical indications. Theoretically we may argue as we choose. In the presence of a patient the actual state of our knowledge to-day admits, in my opinion, the justifiability of the operation only under the conditions mentioned, except it be in those rare cases of mutilation or rupture of the uterus where sepsis is present or is deemed inevitable or where repair of the injury is impracticable.

A few words regarding the technique may be pertinent. The operation, if my judgment in the matter is followed, will not be undertaken unless there is an accident requiring investigation or repair, or unless, in our operative procedures for pelvic suppuration, it becomes evident that removal of the

uterus is advisable to secure proper drainage or because the organ is itself a dangerous focus of infection. Hysterectomy under these conditions is a subsidiary undertaking, and our method of operation depends very largely upon the course that has been adopted with reference to the main factors in each particular case. If we have opened an abscess by vaginal incision through the left fornix and find evidence of suppuration in the other side, we will at once make an incision in the right fornix, and in many cases we will succeed by judicious treatment in draining the abscess cavity so that its walls may fall together, and it may ultimately become obliterated. In certain instances we may conclude that these measures fail to provide adequate drainage. We may fear that there are other abscesses beyond our reach, or we may decide that the uterus itself is septic. Under these conditions we will probably continue our work within the vagina and remove the uterus by vaginal hysterectomy, the details of the operation varying according to the difficulties encountered. In some instances the organ with its adnexa may be removed entire; at other times it will be removed in sections or the fundus will first be delivered through our incision. Hemostasis will probably be secured by forcipressure in preference to ligatures, for the hemorrhage is apt to be excessive.

There are other cases where our incision is abdominal. The pus may be in relation to the adnexa, the appendix, or the peritoneum. It may be possible to remove the parts affected in their entirety, or to satisfactorily drain the pelvic abscess through the abdominal wound or by counter-drainage through the vagina. When the uterus is involved and its removal seems necessary we will probably continue on in our work through the abdominal incision, the operation being greatly facilitated by the Trendelenburg position. In most instances we will apply forceps to the broad ligament and cut away the uterus about where the cervix projects into the vagina. We will then remove our forceps one by one and tie the tissue that was held in their grasp. Our efforts to tie arteries separately, as is now the custom in most abdominal hysterectomies, will probably be unsuccessful on account of the increased vascularity of the parts.

If the cervix has been seriously lacerated, and indeed in almost all cases when the fundus is septic, the portio vaginalis should be removed, if its removal is not attended by a great increase in the risk. I realize that operations of this character

are often undertaken when the woman is *in extremis* and the element of time may be of vital importance. Our knowledge of the lymphatic distribution should teach us in every case the probability of an extension of infection, and should make us understand the desirability of removing every focus.

The technique of the extraperitoneal method should be remembered. Lawson Tait tells us that hysterectomy so performed is the simplest of abdominal operations. In Porro's operation and in the removal of large fibroids I have seen some very brilliant recoveries. To-day we like to be exact in the placing of ligatures and the coaptation of cut surfaces, and this tendency toward clean and accurate surgery is commendable. At the same time cases are still met with when the extraperitoneal method under certain conditions will save life. It is a satisfaction to know that the abdomen can be incised, the uterus pulled up into the incision, and a rubber ligature or a piece of drainage tubing can be tied around it so as to stop the hemorrhage. Then two long hat pins are made to transfix the mass under the ligature and serve to hold it in place. Large pieces of gauze are placed around the uterus so that no blood can enter the abdominal cavity. A portion of the mass about an inch above the ligature is now seized with large forceps. This is to control hemorrhage, if there be any, when with our scissors we cut into the mass just above the forceps. Successive portions of the uterus are removed in this way until the stump is left, a raw, irregular surface, with ten or a dozen forceps grasping the tissue where we have cut away perhaps the upper two-thirds of the uterus. Now the pieces of gauze are taken away and the abdominal incision is closed. We used to sew the peritoneum to the peritoneum of the stump, but Porro told me some years ago that this was unnecessary, and he ought to know. We simply wind some gauze around the stump under the pins and apply a simple dressing. In a day or two, or perhaps at once, all forceps can be removed, and in the course of time the stump shrivels up and heals from the bottom.

This is not an ideal hysterectomy according to our latest perfection of technique. Nevertheless it has been done many times with good results. Under suitable conditions in certain emergencies it is still available. It is, when immediate hysterectomy is indicated, vastly better than doing nothing, while its simplicity and ease of execution are points in its favor which many of us will appreciate.



THE WALCHER, THE TRENDELENBURG, AND THE MERCURIO POSTURES IN MIDWIFERY:<sup>1</sup>

BIBLIOGRAPHICAL NOTES.

BY

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(With nine illustrations.)

THE important place accorded to posture in delivery by the programme of the August meeting of the International Congress of Gynecology in Amsterdam justifies a review of this confused matter.

Geronimo Scipio Mercurio, who lived between 1550 and 1595, published a little volume of essays entitled "*La Commare o Riccoglitrice.*" The first edition is dated 1595. There was a

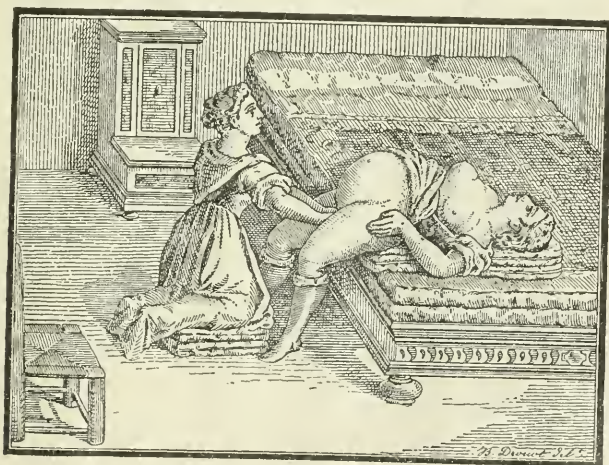


FIG 1.—Hanging dorsal posture, 1595. (Mercurio.)

German edition of this book for midwives issued in Leipzig in 1652. Among the crude woodcuts occur those here given as Figs. 1, 2, and 4. Witkowski, in his "*Histoire des Accouche-*

<sup>1</sup>The nomenclature proposed by the author in his illustrated paper in the December JOURNAL was; Walcher, the hanging dorsal posture; Trendelenburg, the inclined dorsal; Mercurio, the arched dorsal; the posture of ordinary examinations, the half-flexed dorsal; and that used in operations on the back, the full-flexed dorsal posture.

ments chez tous les Peuples,"<sup>1</sup> from whom I have borrowed the cuts, has had them redrawn, but without modifying any material detail. The Walcher, or hanging dorsal, posture picture occurs in the edition of 1595, according to Witkowski, and the edition of 1601, the earliest to which I have access, contains the cut of the arched dorsal posture.<sup>2</sup>

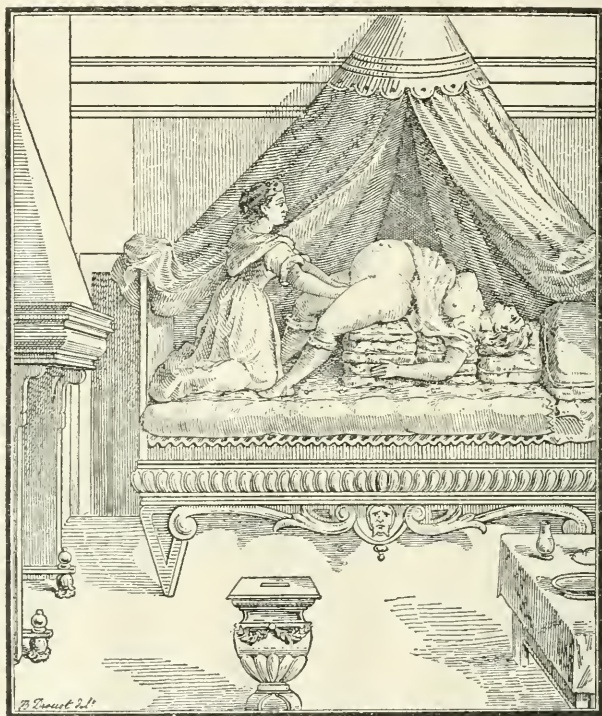


FIG. 2.

EXPLANATION OF WOODCUT OF ARCHED DORSAL POSTURE IN MERCURIO'S "COMMARE."

Sito necessarissimo in ogni parto vitioso nel quale si debbono collocare tutti le gravidie, che difficilmente partoriscono per quale si voglia causa.

(The position most necessary in every faulty birth, in which all parturients ought to be placed when for any reason whatever the labor is difficult.)

I am inclined to say with Mercurio that there are obstetric emergencies in which the latter posture is "necessarissimo."

In his first chapter on abnormal labor, Mercurio<sup>3</sup> says:

<sup>1</sup> 714 pages, 8vo, Paris, Steinheil, 1877.

<sup>2</sup> See also Engelmann: "Labor among Primitive Peoples," Chambers, St. Louis, 1884. Ploss: "Das Weib in der Natur- und Völkernunden," Leipzig, Fernau, 1891.

<sup>3</sup> "La Commare o Riccoglitrice." Del Ecc. G. Scipion. Mercurii. Pp. 407. Gio. Bai. Ciotti, Venetia, 1601. Reference to description of position on page 140 et seq. Woodcut on page 143.

“The following appropriate position will be necessitated under these conditions and moreover in every other variety of faulty birth. This position is illustrated by a cut, but for the sake of greater lucidity it is hereby described.” “The parturient is placed upon her back in bed. Cushions are arranged beneath her shoulders, and are proportionally made higher until the nates are reached, in such manner that there is an incline from the nates down to the shoulders, the head hanging back upon the bed.”

Mercurio directs the midwife to examine the woman in this position and to attempt to reduce the faulty position by manipulation. He then continues:

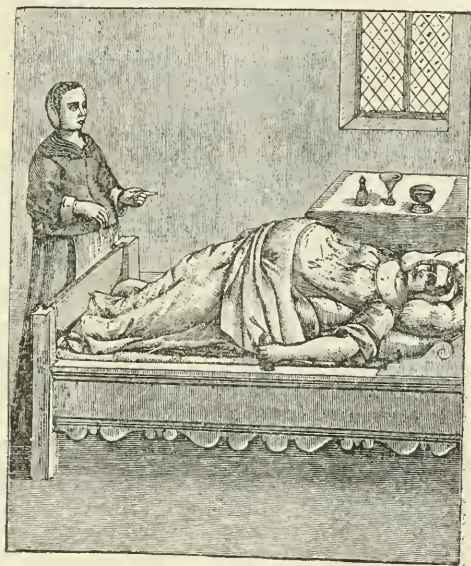


FIG. 3.—Arched dorsal posture as shown in the German edition of *Mercurio*, by Welsch.,

“There is an error not only of midwives but of certain physicians whom I have seen operate in such cases. In attempting to reduce the head to the normal position they place the parturient in an armchair, not perceiving that this position is most opposed to the mechanism of labor. When this is done the weight of the child plus the downward pressure of the intestines forces the said child into a faulty position which neither diligence nor force may correct, and I have seen both mother and child perish on several occasions under these circumstances.

“I arrange the parturient in the supine position, head



hanging and all the trunk elevated in the manner already described, so that the midwife is enabled to bestride the abdomen of the mother and thus expel the fetus from the straits within, for this procedure appears to cause the fetus to assume a position natural to labor."

Throughout the chapters on faulty labor there are allusions to this position, but nothing not included in the foregoing.

Corradi<sup>1</sup> says that "Scipio Mercurio's teachings were the reverse of those of the Greeks and Arabians. He did not require the parturient to lie prone or get upon all-fours, but placed her on her knees, with thighs spread apart and body bent backward so that the head touched the ground, etc."

Corradi here describes the "fat woman's position," and does not in this connection mention the "hanging incline," reserv-

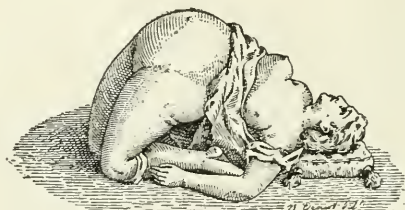


FIG. 4.—"Fat woman's" posture. (Mercurio.)

ing it for another passage. He says further of the fat woman's position:

"He (Mercurio) affected to believe that this position was recommended by Avicenna. But what the latter really prescribed was for a fat woman to lie prone with head on ground and thighs flexed beneath abdomen."

After describing the obstetric chair, Corradi says: "But a substantial improvement in the obstetrical chair was not made for a century after the time of Gottfried Welsch. The latter translated Scipio Mercurio's 'Commare' into German. Our obstetrician (Mercurio) had severely reproved the midwives and physicians who made use of the obstetrical chair when the child was in a bad position. He thought the chair would make a bad position worse, and counselled that the parturient be placed supine in bed with the head lower than the rest of the body, which was supported by cushions so raised that the shoulders were lower than the nates. He advised this position

<sup>1</sup> "Dell' Ostetricia in Italia." Alfonso Corradi. Bologna, 1874. Pp. 1,640. Gamberini e Parmeggiani. Extracts are on pages 436 and 440.



for all puerperæ when labor from any cause was difficult, with the one exception of corpulence."

This hanging incline (*sdrucchiolo pendente*), as Mercurio called it, did not prove useful enough to deserve a special apparatus, according to Corradi, nor did it merit the term "*lectus imperialis*" (imperial bed) given it by Kilian.<sup>1</sup>

Mercurio had no idea of enlarging the pelvic diameters. Everything shows that he was in complete ignorance of any rationale for his position; therefore it is hardly just for Klein<sup>2</sup> and La Torre<sup>3</sup> to seek to take away credit from Walcher, who says himself that Mercurio used the position, but empirically.

Siebold, in his valuable "*Geschichte der Geburtslehre*,"<sup>4</sup> takes the passage subjoined from a foot-note in Corradi's history explanatory of the term "*imperial bed*." The original is in Latin, translation as follows:

"A bed, otherwise known as imperial bed, a peculiar arrangement of pillows for obstetrical purposes, represented in a woodcut in Scipio's '*Commare*.'"

(Corradi adds that a bed with canopy and curtains has nothing to do with the arrangement of pillows, which could take place as well on the floor of the lying-in room.)

Siebold dubs the posture "*backbreaking*." Osiander<sup>5</sup> mentions the position only to condemn it.

Fothergill<sup>6</sup> makes the point that the old picture of the hanging posture shows the feet supported by the floor, and that, therefore, traction by the legs on the innominate bones would not pull the symphysis away from the promontory. The same criticism must be made concerning the arched dorsal position in this three-century-old picture, as the feet rest upon the bed. The objection is unimportant, because the posture alone, even

<sup>1</sup> "*Die operative Geburtshülfe*." Von Dr. Herman Friedrich Kilian. Bonn, 1849. Pp. 860. Eduard Weber. Reference, p. 125.

The passage in Latin about *lectus imperialis*, the term used by Kilian, was found by him in this book.

"*Commentatio de cubilibus sedilibusque usui obstetricio inservientibus*." Georg Christoph von Siebold. Göttingæ, 1790. J. C. Dieterich. Pp. 83. Reference, p. 68 (Corradi, p. 441, note).

<sup>2</sup> *Zeitsch. f. Geb. u. Gyn.*, Bd. xxi., S. 74.

<sup>3</sup> Proceedings International Congress at Moscow.

<sup>4</sup> "*Versuch einer Geschichte der Geburtshülfe*." E. C. J. von Siebold. Berlin, 1839-1845. T. C. F. Enslin. In vol. i., p. 374, is a reference to the *lectus imperialis* (Corradi, p. 441, note). Siebold's "*History of Obstetrics*" has recently been translated into French and brought up to date by Hergott. Paris, 1893. Three vols.

<sup>5</sup> *Lehrbuch der Entbindungskunst*, Göttingen, 1799.

<sup>6</sup> *Edin. Med. Jour.*, 1895-96, vol. i., p. 42.

without traction by means of the full weight of the leg, would probably do nearly all that posture plus the full weight of the leg could effect.

Sebastiano Melli republished the two cuts, in "La Comare Levatrice," Venezia, 1766. He says that Mercurio's position has relapsed into oblivion and that he attempted its revival.

Walcher, in the *Centralblatt für Gyn.*, 1889, Seite 892, has a short communication describing the use of the hanging dorsal posture in flattened pelves, and claims an increase of the true conjugate from eight to thirteen millimetres under certain circumstances. This difference is between the true conjugate in the fully-flexed dorsal and the hanging dorsal, *not* between the straight dorsal and the hanging dorsal. It is, however, legitimate to speak of the gain as averaging one centimetre, because the ordinary posture for forceps delivery had been a half-flexed or fully-flexed dorsal posture. He also draws attention to the shortening of the antero-posterior diameter of the outlet in his posture, due to the swinging forward of the tip of the sacrum.<sup>1</sup>

Walcher also says<sup>2</sup> that after the head has been pulled through the inlet by his procedure, the pelvic floor is most efficiently relaxed by changing the patient to the fully-flexed posture. His experiments were made on a few women in labor.

Matthews Duncan<sup>3</sup> had already demonstrated rotation at the sacro-iliac joints and showed the elongation due to such motions. He speaks of four to six millimetres alteration. Hermann Meyer<sup>4</sup> reached the same conclusion. Crouzat<sup>5</sup> found that by extension and flexion on the cadaver the true conjugate varied eight millimetres. Farabœuf is quoted by Currier<sup>6</sup> as agreeing with this.

Klein<sup>7</sup> reports a large number of experiments on cadavers. In an excellent paper, which, next to Küttner's, is the most thoroughgoing and scientific study of the postures I pictured,<sup>8</sup> he draws attention to the fact that the pivotal point of the axis of the swing of the symphysis is behind the joint, one centimetre to the rear of the middle of the second sacral vertebra. He

<sup>1</sup> Verh. d. Deut. Gesell. f. Gyn., 1892, S. 448.

<sup>2</sup> Med. Cor. Blatt d. Würtemb. Aerz. Verein, Bd. lx., Heft 5.

<sup>3</sup> Dublin Quart. Med. Jour. for Med. Sci., 1854, xviii., p. 60.

<sup>4</sup> Arch. f. Anat. u. Entwicklungsgeschichte, 1878, S. 1.

<sup>5</sup> "De la Menstruation du Diametre Suboccipito-pubienne," Paris, 1881, p. 312.

<sup>6</sup> Med. News, 1896, p. 265.

<sup>7</sup> Zeitsch. f. Geburt. u. Gyn., Bd. xxi., S. 74.

<sup>8</sup> AMERICAN JOURNAL OF OBSTETRICS, Dec., 1898.

calls the pelvis in the hanging dorsal posture *das gedehnte Becken*; in the straight dorsal posture, *das ruhende Becken*; between the flexed and fully-flexed dorsal, *das gedrückte Becken*; in the fully-flexed dorsal, *das gepresste Becken*. None of the forty-seven cadavers were from the postpartum weeks.

Klein found that he could more easily shorten than lengthen a

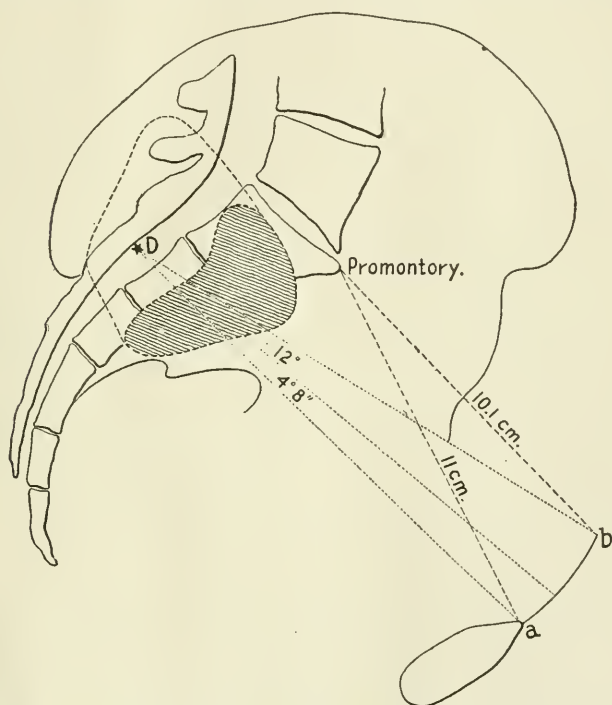


FIG. 5.—Rotation of the innominate bones about the centre "D." (Klein.)

true conjugate, starting in the straight dorsal posture. The average was about five millimetres either way. Walcher claimed that the gain is actually greater in flattened than in normal pelvises. Klein found this to be true. The latter believes that three elements produce the lengthening in the vera—rotation, the sliding which takes place in the sacro-iliac joint, and the slight spring of the bones. The first is the only important one. A motion on the part of the symphysis of one centimetre up or down affects the vera three millimetres. The pull of the full leg weight is twenty-four to thirty kilogrammes (thirty-three pounds). He fears that the position is unbearable, and this criticism has weight for every other method but mine.

Fehling<sup>1</sup> strongly advocates a widespread use of the hanging dorsal posture, particularly in high forceps and head-last extractions. Dührssen's experiments<sup>2</sup> showed an average increase of nine millimetres in the Walcher posture. Wehle<sup>3</sup> reports success in various operative procedures—for instance, in a version with a true conjugate below eight centimetres. He thinks that twenty per cent more living children will be born through this means. Both Dührssen and Wehle prove that the usual posture for obstetric operations, namely, the full-flexed dorsal, actually shortens the antero-posterior diameter of the inlet, but that the hanging dorsal lengthens it.

Jewett<sup>4</sup> reports his results on several living subjects examined within two weeks after labor. The gain from Walcher's posture varied from .5 to .75 centimetre. In four non-puerperal pelvises in the dissecting room the increase was four, five, six, and four millimetres. Bristow<sup>5</sup> measured three non-puerperal cadavers with extreme accuracy. The gain, comparing full flexion with full extension, was one-eighth of an inch (three millimetres) in each instance, from promontory to mid-symphysis, while the diameter from the subpubic arch to the tip of the sacrum was lessened one-sixteenth, one-sixteenth, and five-sixteenths inch respectively.

My paper read before the Brooklyn Gynecological Society in February, 1896, based on cases dating from the one detailed in the published paper, which occurred in April, 1894, was illustrated by cuts of sections and by the living model.<sup>6</sup> In December, 1898, I hunted up the literature here given.

Fehling<sup>7</sup> says: "I have in [three] cases [the earliest occurring in August, 1894], placed upon each other at the head of the bed, mattresses divided into three parts (*drei theilige Mattrazen*), so that the legs hung down freely inside the bed without touching the floor, while the buttocks lay exactly on the edge of the upper mattress. Of course the upper part of the body has a great tendency to slip down if it is not firmly supported against the headboard. This is done with towels broadly folded or with girdles which, passing under the armpit, hold the shoulder girdle up. In the same manner the hip region is fastened upward by a girdle passing on each side, broadly around the curve of the thigh." Carrier speaks of Fehling's method as a modified

<sup>1</sup> Verh. d. Deut. Gesell. f. Gyn., 1893, p. 45.

<sup>2</sup> Id., 1893, p. 47.

<sup>3</sup> Arch. f. Gyn., 1894, p. 325.

<sup>4</sup> Brooklyn Med. Jour., Nov., 1894, vol. viii., p. 653.

<sup>5</sup> Id., p. 654.

<sup>6</sup> AMERICAN JOURNAL OF OBSTETRICS, Dec., 1898.

<sup>7</sup> Münch. Med. Wochenschrift, No. 41, Oct. 30, 1894, S. 861.



Trendelenburg posture. From Fehling's description it is not quite clear to me whether it covers my ground or not. I knew nothing of Fehling's posture or Currier's suggestion until three years after I began using the arched dorsal posture.

Currier,<sup>1</sup> in an article covering the subject well—with the exception of Klein's article—says in conclusion, in speaking of the discomforts of the Walcher posture: "It may be that this difficulty may be remedied by placing the patient in the Trendelenburg position, in which the condition of extension would be preserved."

Fothergill<sup>2</sup> thinks that the hanging dorsal posture relaxes the pelvic floor in the perineal stage, and the traction rods on the axis-traction forceps will, therefore, damage the perineal structure little. Herein he is at odds with Walcher himself, who places the patient in the full-flexed dorsal posture when the head reaches the pelvic floor, in order to lessen the danger of laceration.

Eiermann,<sup>3</sup> after quoting good results, says that the number of high forceps applications will be lessened by employment of the Walcher posture. Valuable service is rendered in delivery of the aftercoming head, and perforation of both head-first and head-last cases is rendered easier. It is in the minor grades of contraction that the procedure is chiefly of use.

Klein,<sup>4</sup> Pazzi,<sup>5</sup> La Torre, and Simanti<sup>6</sup> contribute historical notices of the hanging dorsal posture. Pazzi it was who, incorrectly, fastened Melli's name on the posture in conjunction with Walcher's. He has reported on the procedure for face cases with the chin to the rear.<sup>7</sup> Fothergill<sup>8</sup> gives encouraging reports. Jardine<sup>9</sup> gives an instance of happy issue with this proceeding, where, in five previous pregnancies, no living full-term child had been born: the true conjugate measured  $2\frac{3}{4}$  inches; the child weighed  $8\frac{1}{2}$  pounds.

Huppert's<sup>10</sup> observations on 28 cases of flat and generally contracted pelves lead him to state that in flat pelves with true conjugates down to 7 centimetres (eventually lower) and in generally contracted pelves down to 7.5 centimetres (seldom lower) spontaneous labors in vertex presentations are rendered possible. In this classification should be included normal pelves

<sup>1</sup> Med. News, March 7, 1896, p. 265.      <sup>9</sup> Edin. Med. Jour., 1895, p. 142.

<sup>2</sup> Die Praxis, Frankfurt-a-M., 1896, No. 9.

<sup>4</sup> Centralbl. für Gyn., 1897, No. 45.      <sup>5</sup> Atti della Soc. ital. di Ost. e Gin.

<sup>6</sup> Proceedings Moscow Intern. Congress.

<sup>7</sup> Rassegna di Ost. e Gin., 1896, Nov.-Dec. Ref. Centralbl. f. Gyn., No. 32, 999.

<sup>8</sup> British Med. Jour., 1896, No. 1870.

<sup>9</sup> Glasgow Med. Jour., April, 1897.

<sup>10</sup> Arch. f. Gyn., Bd. lvi., pp. 199.

with abnormally large children. Huppert gives the following indications: good quality of contractions, ruptured membranes, obliterated cervix, vertex presentation. Even in greater relative disproportion where spontaneous delivery is not to be expected, operative procedures are rendered easier and the child's chances bettered. Huppert even states that the lowest limit of contraction in which he succeeded in delivering a living child (49.5 centimetres in length, 2,850 grammes) fell within the class for Cesarean section for relative indication. Huppert says that the posture produced most effect when the head, still somewhat movable, lay in the inlet or projected little into the true pelvis. When more deeply engaged no progress is to be

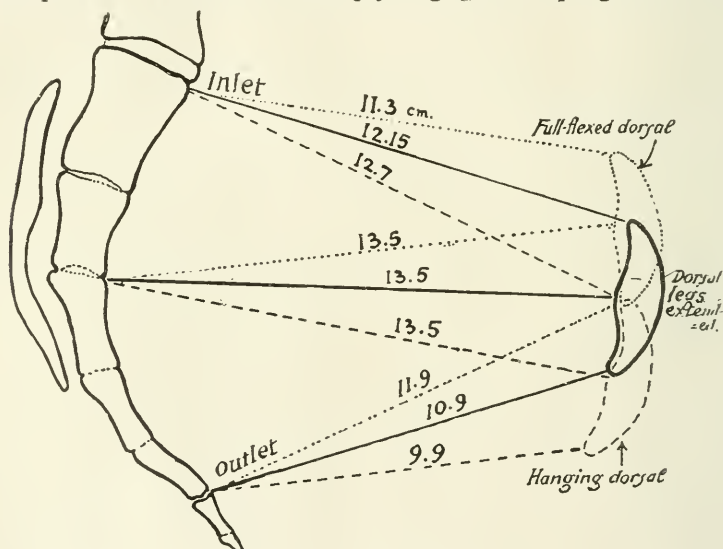


FIG. 6.—Pulling down of symphysis and longer vera in hanging dorsal posture. (Küttner.)

expected from the posture. In half the cases the effect followed promptly.

Schmidt<sup>1</sup> had employed the full-flexed dorsal posture for eight years to increase the diameters of the outlet when the head was stationary in the pelvic cavity or at its outlet, thereby lessening the percentage of his low forceps extractions.

Von Küttner,<sup>2</sup> in a paper containing an excellent critical review of previous researches, reports exact results on entire puerperal cadavers, not on pelvis alone as did Klein. He took

<sup>1</sup> Centralbl. f. Gyn., 1897, p. 1394.

<sup>2</sup> "Experimental Investigations upon the Alterability of the Pelvic Space in Parturients." Beiträge zur Geburtshilfe und Gynäkologie, 1898, i., Heft 2.

plaster casts of the pelvic cavity by an ingenious method in each of the three postures, hanging, straight, and full-flexed

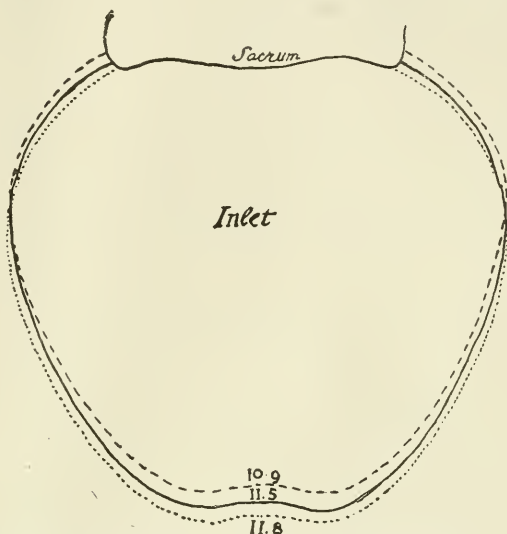


FIG. 7.—The inlet in the three postures—smallest in full-flexed dorsal. (Küttner.)

dorsal. Taking the sacrum as a fixed point, the symphysis

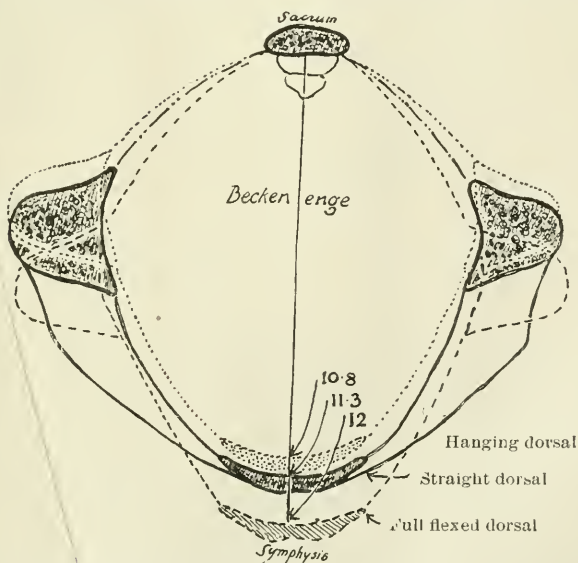


FIG. 8.—The outlet in the three postures—longest in the full-flexed dorsal. (Küttner.)

may be said to "wander" up or down, according to the position of the legs as shown in the diagram, Fig. 6. Coincident

with this alteration in the relative location of the symphysis, rotation of the symphysis took place about a transverse axis passing through its middle portion. Thereby, as the symphysis rises, its upper edge approaches the promontory, whereas the lower border goes further and further away from the sacrum (Fig. 6). Conversely, if the legs hang down, the upper edge increases its distance from the promontory, while the lower border approaches the sacrum.

The most striking result of Von Küttner's casts is shown in Fig. 8. The alteration in shape of the plane of the outlet is

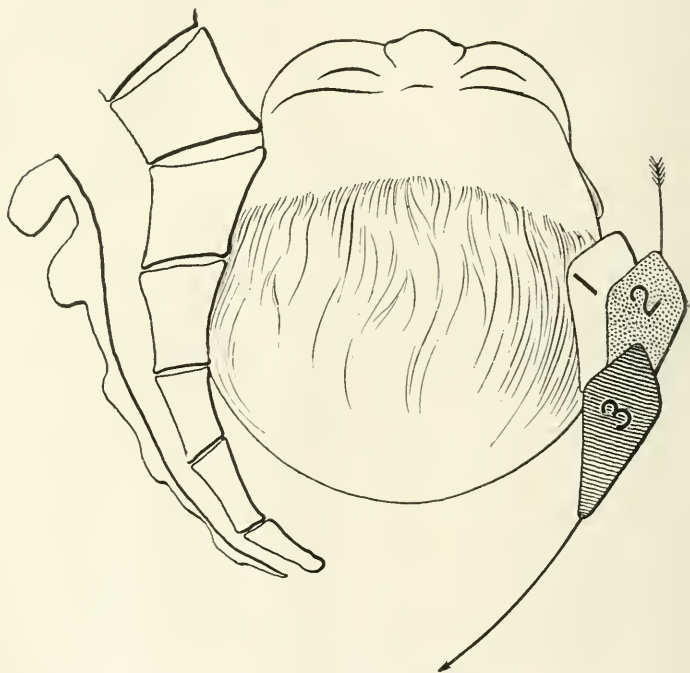


FIG. 9.—Pinard's idea of the effect of the Walcher posture. No room gained.

much greater than that of the inlet; and opposite effect, so that in the full-flexed dorsal posture the antero-posterior diameter of the outlet is at its maximum, whereas in the hanging dorsal it is at its minimum. There is much more alteration obtainable through posture on the outlet diameter than in the inlet measure. Change from hanging to full-flexed dorsal lengthened the conjugate of the outlet 1.4, 1., and 2 centimetres respectively (Figs. 7 and 8), while the true conjugate was lengthened, by changing from full-flexed to hanging, 1., .9, and 1.4 centimetres, the pelves being named in like order. The transverse measurements are not affected.



Pinard<sup>1</sup> argues against the hanging dorsal posture, because he believes that it narrows the diameters between the mid-sacrum and the back of the symphysis, and also those of the outlet, as shown in the diagram. This seems to me fallacious.

Varnier<sup>2</sup> declares that symphyseotomy should replace all other methods of treating narrow pelves. The pelvis cannot be enlarged without section, and studies in mensuration on cadavers disprove the claims of Walcher. In 1894 Varnier had already discussed the *pro* and *con* of Walcher's position. Instead of its enlarging the true conjugate by one centimetre, experiments on the unpuerperal cadaver show that the true conjugate does not gain over 6 millimetres (due to the maximum play of the sacro-iliac synchondrosis), while in the puerperal pelvis the gain does not average over 5 millimetres. Pinard and Varnier have studied the question since 1894. They measured the pelves of nine women who died in the puerperal state. In one case the true conjugate was not enlarged at all; it was enlarged 1 millimetre in two cases; 1.5 millimetres in one case; 2 millimetres in one case; 3 millimetres in three cases; 4 millimetres in one case.

Ayers<sup>3</sup> discredits the hanging dorsal posture, as unlikely to give an increase in the antero-posterior diameter of appreciable practical value. He thinks, however, that as the symphysis is pulled downward opposite the sacral hollow, the posterior parietal eminence of the child's head is likely to enter the true pelvis first, while the anterior eminence is still over the symphysis, whereby advantage is taken of a practical increase in the passage.

The *practical deductions* from all these studies are evident:

1. *Posture will notably alter the shape of the pelvis in late pregnancy.*

2. *Increase in available room in the pelvic cavity as a whole cannot be brought about.*

3. *To obtain the longest conjugate at the inlet the hanging dorsal posture is to be employed. The gain is nearly 1 centimetre.*

4. *To obtain the longest conjugate at the outlet the full-flexed dorsal posture is necessary. The increase promises to be from 1.5 to 2 centimetres.*

<sup>1</sup> Annales de Gyn. et d'Obst., xvi., 1894, 428.

<sup>2</sup> "Rapport sur la Symphyséotomie," Internat. Med. Cong. Moscow; also Ann. de Gyn., tom. xlviii., 1897, p. 252.

<sup>3</sup> Obstetrics, April, 1899.

## TRENDELENBURG OR INCLINED DORSAL POSTURE.

Trendelenburg's<sup>1</sup> paper of 1890 may be summarized as follows: Elevation of the pelvis was recommended by the old surgeons in connection with the taxis for hernia. The theory was that the weight of the mesentery, assisted by violent shaking, ought to set free the incarcerated loop of intestine.

Fabricius ab Aquapendente recommended that the patient be hung up by the hands and feet with pelvis higher than thorax, and that he should then be shaken violently. Corvillard practised complete inversion, hanging his patient by the feet. Sharp recommended that the patient be placed upon the back of an assistant with his legs hanging over the latter's shoulders, so that the knee-hollows rested upon them. He was also to be shaken. Ribes recommended a similar procedure.

In 1878 Freund placed a patient, who was to be operated on for carcinoma uteri, in such a position that the pelvis was higher than the head.

In 1880 Trendelenburg began to use the position which goes by his name. He was not influenced by Freund, but got his idea from Marion Sims, who, in his well-known position, made the vulva the highest part of the trunk. As Sims caused air to enter the vagina, Trendelenburg wished it to distend the bladder in fistula operations. Later it was found of value in suprapubic lithotomy (1884). In 1887 he began its use in laparotomy due to intrapelvic troubles.

De Leon used the position for the castration of women and for gynecological exploration (palpation of pelvic organs through abdominal walls).

In consulting Trendelenburg's references<sup>2</sup> we find that he did not take much pains to look up the history of his position, as his references and notes were taken bodily from Bardeleben's "Chirurgie," fourth edition, vol. iii., p. 775, section on hernia. These references are incomplete and often give no clue by which they can be looked up. The "similar procedure" of Ribes is as follows:

"Ribes places the patient at the foot of the bed in such manner that the knee-hollows rest over the shoulders of an assistant, who raises the pelvis and shakes the body of the

<sup>1</sup> "Ueber Blasenscheidenfisteloperationen und über Beckenhochlagerung bei Operationen in der Bauchhöhle." Volkmann's Sammlung, Chirurgie, No. 109, 1890.

<sup>2</sup> References given by Trendelenburg: Ribes, Bardeleben's "Lehrbuch der Chirurgie," 8th edition, iii., p. 792.

Freund, Samml. Klin. Vorträge, No. 133.

De Leon, Centralblatt f. Gynecol., 1888, No. 21.

patient while the operator makes taxis." No reference is appended to Ribes.

As for Sharp, there is no reference to him either. He is doubtless the renowned English surgeon (eighteenth century), but in looking through his *Surgery* I find it only stated that "the buttocks should be raised considerably above the head in making taxis."

#### OTHER POSTURES.

Palmer Dudley, in a discussion on my sheet sling,<sup>1</sup> expressed the opinion that the pelvic floor was subjected to increased tension from the full-flexed posture, while the head was escaping. If Fothergill is right, his argument applies to the arched dorsal as much as to the hanging posture.

Potter<sup>2</sup> presents a number of fine cuts tending to give clear ideas of the postures he describes. The full-flexed dorsal, but with the hands above the head, he calls the dorsal sacral position. The posture with partly flexed legs, yet with feet not on a table, he labels the dorsal recumbent. The ordinary posture for examination, the thighs and legs flexed and the feet on the table, the shoulders and head somewhat elevated, he calls the dorsal elevated. Hegar labels the latter the lithotomy posture, but Potter calls his dorsal sacral the lithotomy posture.

Howard Kelly, in examining the bladder, places two pillows under the sacrum of the patient lying in the fully-flexed dorsal posture. He calls this the "dorsal position with elevated pelvis."<sup>3</sup> We might abbreviate his name for the posture to accord with my previous suggestions and label it the "inclined flexed dorsal."

Brothers<sup>4</sup> emphasizes the value of posture in prolapse of the cord. The woman being placed in the genu-pectoral position, the body of the uterus tends to slip lower than the cervix, and the cord, owing to the same force of gravity, tends to slip down to the fundus and out of harm's way.

In 1894, in the Jenks prize essay on prolapse of the cord, the author expressed his opinion that the dorsal position with pelvis elevated would prove far superior to the genu-pectoral position, and added, "theoretically Trendelenburg's position ought to be followed by the same results."

He gives a history of two cases.

<sup>1</sup> N. Y. Med. Record, April 5, 1890.

<sup>2</sup> AMERICAN JOURNAL OF OBSTETRICS, 1892, vol. xxvi., p. 758.

<sup>3</sup> "Operative Gynecology," Appleton, November, 1898, vol. i., p. 279.

<sup>4</sup> "A New Postural Method of Treating Prolapsus of the Umbilical Cord." By A. Brothers. AMERICAN JOURNAL OF OBSTETRICS, 1895, p. 849.

THE PROPHYLAXIS AND TREATMENT OF PUERPERAL FEVER,  
WITH REPORT OF THREE CASES OF STREPTOCOCCUS INFECTION SUCCESSFULLY TREATED WITH ANTISTREPTOCOCCUS SERUM.<sup>1</sup>

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BY

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(With three charts.)

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MODERN bacteriology and pathology have demonstrated conclusively the fallacy of the previously accepted theory of the essentiality of puerperal fever, and likewise have been able to explain its manifold manifestations by showing that wound infection and puerperal infection are identical and may be due to a variety of pathogenic organisms.

Pasteur<sup>10</sup> in 1879 directed attention to the presence of chain-like cocci in the blood and pus of abscesses of parturient women. Doléris in the following year confirmed this view, and since that time it has been frequently verified by numerous authorities. In 1888 Brieger<sup>14</sup> mentioned the staphylococcus as a possible cause of puerperal infection, and his results were supported by the investigation of Döderlein, Hagler, and others. This variety of infection, as a rule, is mild, but Strüeckman has recently reported a fatal case in which the staphylococcus pyogenes aureus was proved to be the cause of death. Von Franqué<sup>14</sup> in 1893 was the first to show a causal relation of the bacillus coli communis to puerperal sepsis. Williams in the same year concurred in this view and predicted that future investigation would prove such infection to be of frequent occurrence. Bumm and Krönig<sup>9</sup> were the first to cultivate the gonococcus, thereby supporting the clinical fact that this germ is the frequent cause of sepsis during the puerperium; and recently Dobbin<sup>3</sup> has reported a case of mixed infection of the streptococcus, staphylococcus, and typhoid bacillus, Blumer<sup>1</sup> a case of staphylococcus and typhoid bacillus.

Pasteur and Soubert<sup>11</sup> in 1877 described a bacillus of puerperal fever which they named septic vibrio. Animals inoculated

<sup>1</sup> Read before the Medical and Surgical Society of the District of Columbia, March 10, 1899.



succumbed quickly. Section showed absence of pus, but a well-marked edema of the connective tissue. The micro-organism grows anaerobically, and is, according to Tarnier, identical with Koch's bacillus of malignant edema. Ernst and Krönig have reported fatal cases of puerperal sepsis caused by anaerobic bacteria, and numerous instances are recorded of puerperal diphtheria with a like result.

*Streptococcus pyogenes* is found in the body under a variety of circumstances and is probably the most important cause of septicemia and pyemia following wounds, of ulcerative endocarditis, tonsillitis, and erysipelas. Bacteriological investigation shows it to be the most frequent cause of the various septic processes following labor, and it may be found pure or associated with other organisms. It has long been recognized that its manifestations are varied and that they depend upon several factors, as the nature of the organism, the soil, the dose of the virus, and the place of entrance. The most important factors are the virulence and character of the infecting organism. Variation is common to different specimens of the same species. Under certain conditions the virulence is increased, while under others it may be decreased or attenuated. It may produce abscess at point of inoculation, which may or may not become diffused throughout the body, or it may even cause death without the appearance of any local change.

According to Widal,<sup>12</sup> Bumm,<sup>2</sup> and Gärtner,<sup>7</sup> the placental site is the favorite point of invasion of the infecting germ, either by way of the lymphatics or veins, or both. Yet infection does frequently take place from wounds of the vagina and cervix. Widal<sup>12</sup> has demonstrated the identity of streptococcus infection in different parts of the body, though presenting a variety of clinical appearances. Gönner<sup>8</sup> and Döderlein<sup>4</sup> in 1887 investigated the vaginal secretion, and while the former obtained negative results as regards the presence of pathogenic organisms, the latter found numerous pathogenic organisms, including streptococci. Döderlein<sup>4</sup> in 1892 published a monograph on the vaginal secretion, based upon an examination of 195 cases. He distinguished two varieties of secretion, normal and abnormal. The normal is whitish, thick like curdled milk, of an intensely acid reaction, and containing almost always a particular form of bacillus possessing characteristic qualities and features. The abnormal is yellowish or greenish, of creamy consistence, faintly acid or alkaline, and containing a great variety of cocci and bacilli. As the result

of his examination, 55.3 per cent had a normal and 44.6 a pathological secretion. Numerous capable observers have investigated the subject with variable results. Menge and Krönig,<sup>9</sup> being dissatisfied with the discordant views regarding the mode of origin of infectious processes starting out from the vagina, undertook a thorough investigation of the subject. Krönig, in an examination of 200 cases, failed to find pathogenic organisms except the yeast fungus and gonococci, no matter what the character of the secretion. He attributed the differences in results of other observers to faulty technique in obtaining cultures.

Williams,<sup>14</sup> in an exhaustive and interesting paper on the "Bacteria of the Vagina and their Practical Significance, Based upon the Bacteriological Examination of the Vaginal Secretions of 92 Pregnant Women," gives a résumé of the work that has been done. From his survey of the literature it is apparent that the subject is not yet settled, Gönner, Thomen, Samschin, Krönig, and Menge being the only observers who have not found streptococci as well as other pathogenic bacteria, while all other investigators find them in varying percentage of their cases, as is shown by the following table: Burckhardt 4 per cent, Steffek 4 per cent, Döderlein 4.1 per cent, Burguburu 8.5 per cent, Vahle 10 per cent, Witte 12.5 per cent, Kottman 13 per cent, Winter 15 per cent, Williams 20 per cent, Vahle (finger) 25 per cent, Walthard 27 per cent. In the examination of the 92 cases according to the technique suggested by Krönig, he only found staphylococcus albus twice. Williams<sup>15</sup> further supplemented his work by an examination of 25 women in the following manner: He first removed with a platinum needle from the margins of the hymen and inner surface of the labia minora some secretion, then obtained some vaginal secretion by means of Menge's tube, and immediately afterward introduced a sterile glass speculum into the vagina and obtained secretions from various parts of the vaginal wall which apparently had not come in contact with the tip of the speculum. From each of these cover-glass and agar cultures were made and were designated vulval, tubal, and specular. In four cases he found the same organism growing upon the plates from each of the three varieties of secretions, and, as they were identical with those that were in cover-slips from the Menge's tube, he concluded that he had to deal with the original vaginal secretion in each case and that the tube secretion had not been contaminated from the

vulva. In the remaining 21 cases staphylococci (albus or epidermidis albus) were observed in the vulvar secretions in 15 cases (60 per cent), in the specular secretions in 10 cases (40 per cent), and that they were uniformly absent from the secretions obtained with the tube. Colon bacilli were present in the vulval secretions in 4 cases and in the specular secretions in 2 cases. Thus pyogenic bacteria were found in the vulval secretions 19 times, or 76 per cent; in the specular 12 times, or 48 per cent; and were entirely absent when the secretion was obtained by means of a tube. Further analysis showed that in 10 cases in which staphylococci were present in the specular secretions they were likewise present in 8 of the vulval secretions. As the tube-collected secretion was uniformly sterile, he feels justified in holding that the staphylococci were introduced into the vagina by means of the speculum. In regard to the four cases of colon bacillus which were observed in the vulval secretions, they were also present in two of the specular secretions, showing that they were probably introduced into the vagina by the speculum. He draws the following conclusions:

*First.* He agrees with Krönig that the vaginal secretions of the pregnant woman do not contain the usual pyogenic cocci, having found a staphylococcus epidermidis albus only twice in 92 cases, but never the staphylococcus pyogenes or staphylococcus aureus or albus.

*Second.* The discrepancy in the results of the various investigators is due to the technique by which the secretion is obtained. As the vagina does not contain pyogenic cocci, auto-infection with them is impossible, and when they are found in the puerperal uterus they have been introduced from without.

*Third.* The gonococcus is occasionally found in the vaginal secretions, and during the puerperium may extend from the cervix into the uterus and tubes.

*Fourth.* It is possible but not demonstrated, in very rare instances, that the vagina may contain bacteria which may give rise to sapremia and putrefactive endometritis by auto-infection.

*Fifth.* Death from puerperal infection is always due to infection from without, and is usually due to neglect of aseptic precaution on the part of the physician and nurse.

*Sixth.* Puerperal infection is to be avoided by limiting vaginal examination as much as possible and cultivating external palpation. When vaginal examinations are to be made

the external genitalia should be carefully cleansed and disinfected and the hands rendered as aseptic as if for a laparotomy. Vaginal douches are not necessary and are probably harmful.

Bumm and Döderlein<sup>9</sup> were the first to make experiments on the bactericidal effect of the vaginal secretion. They experimented upon the non-pregnant. Döderlein brought into the vagina of several virgins staphylococci, and observed that the same had disappeared from the vagina after 24 hours. He drew from these experiments the conclusion that the so-called normal secretion contained a certain bacillus whose acid products destroyed the introduced pathogenic organism. He made no experiments with the abnormal secretion of the pregnant, because he was of the opinion that this secretion contained not only pathogenic germs, but even afforded a favorable medium for the introduced pathogenic germs. Krönig<sup>9</sup> felt the necessity of proving the correctness of these experiments. He used pregnant women at the seventh month of gestation, and first employed the germ which, so far as is known, is harmless to the puerpera—the bacillus pyocyaneus—and observed the natural bactericidal effect of the vaginal secretion by the disappearance of the same. He next experimented with the staphylococcus and the streptococcus. In 26 cases of infection by the bacillus pyocyaneus the vagina had completely freed itself in an average of 20 hours; the shortest time was 7 and the longest 36 hours. Of the 26 cases 9 had, according to Döderlein's interpretation, pathological secretion, and in these the average was 21.6 hours. In the experiment with the staphylococci he found that they were destroyed more quickly than the bacillus pyocyaneus, and the streptococci could only be obtained from the vaginal secretion six hours after their introduction. Krönig further observed in a series of cases where the vagina was irrigated after being inoculated with staphylococci, that it required twice to three times as long for the vagina to cleanse itself as in cases where no irrigation had been practised. Streptococci, which were ordinarily destroyed in 6 hours, could be demonstrated as long as 30 hours afterward when a douche had been given.

Now, to what is this bactericidal influence due? As has been stated, Döderlein attributes it to the acid products of the vaginal bacillus. Krönig does not think this view justifiable, as he has observed the same effect in neutral and alkaline as well as acid secretions. He believes that several factors play a rôle, viz.: 1. Chemical substances in the secretion, probably acids. 2. Antagonism of bacteria living in the vagina to imported

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bacteria. 3. Leucocytosis and phagocytosis. 4. Lack of oxygen. 5. Tissue juices.

From the foregoing survey of the literature it is seen that the uterus, under normal conditions, is sterile, and some hold a similar view regarding the vagina; but all authorities agree that the vulva is scarcely ever free from pathogenic germs, and that it is almost impossible to render it so. We can readily understand, then, how easy it is to infect the vagina and uterus by simple internal examination or the giving of a douche. Further, since experiments show that the various antiseptic douches impair the natural bactericidal effect of the vaginal secretion, and as pathogenic germs are not destroyed or diminished in virulence, their use should be dispensed with. The recent clinical observations of Leopold, Goldberg, Zweifel, and others, of cases treated with and without douches, sustain the bacteriological investigation. Again, if we compare the results obtained in the lying-in hospitals of Europe before the pathological anatomy period, in which only prophylaxis was used—Vienna, from 1786 to 1822, with a total death rate of sixth-tenths of one per cent in 44,858 cases; Dublin Rotunda Lying-in Hospital, in ninety-three years from 1757 to 1849, 1.23 per cent; and the British Lying-in Hospital, during the same period, with a mortality only two-tenths of one per cent—it can hardly be sustained that the antiseptic treatment has accomplished all that has been claimed for it.

So it is seen that recent bacteriological and clinical investigation are in accord, and the antiseptic treatment, which steadily gained ground from the time that Semmelweiss showed a causal relation of cadaveric poison to puerperal sepsis, is gradually giving way to the more rational idea of asepsis. Routine douches before and after labor are being discarded, and our attention is being directed to the thorough cleansing and disinfecting of the external genitalia, of the hands of the physicians and nurses, instruments, dressing, etc., and avoiding or restricting internal examinations. Such has been our practice in Columbia Hospital for several years, and while our results are not ideal, they are essentially better than when douches were employed.

During the year 1898 there were 255 confinements in Columbia Hospital; two-thirds of these women were admitted in labor. During the course of the year we had 7 cases of streptococcus infection, 2 of bacterium coli, 2 of staphylococcus pyogenes aureus, and 3 of gonococci. Every one of the cases

of streptococcus was admitted in labor, and several gave a history of internal examination before admission; two were cases of criminal abortion. The clinical appearances of these cases were varied. The temperature never rose to  $101^{\circ}$  but once in one case, and to  $100^{\circ}$  in another. Except for the custom of taking cultures on the third day after labor, the presence of streptococci would not have been suspected. In the other five cases they presented a typical clinical picture of septic infection. Two of the cases died, and bacteriological examination showed a mixed infection with putrefactive bacteria in each case. One of the cases of staphylococcus pyogenes aureus several times had an evening temperature of  $104^{\circ}$ , but the pulse never went above 98; the other reached  $101^{\circ}$ , pulse 106. The two colon bacillus cases were primiparæ, and both sustained laceration of the perineum to the second degree. In one the temperature ranged from  $88.6^{\circ}$  to  $103.4^{\circ}$ , pulse 110, reaching the latter on the tenth and twelfth days of the puerperium. Intense nervousness, headache, pains in limbs, and profuse perspiration were the most marked features of the case. In the second case the temperature never rose above  $100^{\circ}$ , and the patient did not suffer at all. One of the three cases of gonorrhea was a woman on whom I performed a symphyseotomy. Her temperature ranged from  $98^{\circ}$  to  $102^{\circ}$ . Fortunately the incision made for exposing the joint did not extend below the superior margin of the symphysis and escaped infection. I am satisfied that a more thorough investigation directed toward examination for the gonococcus would explain the morbidity in some of the cases in which the bacteriological cultures were sterile.

The treatment should vary according to the character of the infection, and may be local, with a view of removing or destroying germs at the point of infection; or general, by the use of measures to neutralize the introduced bacteria or their toxins and to fortify the system in its struggle against the infectious germs; or surgical, to remove collections of pus and organs that may have become a menace to the welfare of the patient. It is well to regard every case of fever occurring during the puerperium as septic until proved not to be so by a searching investigation. Our first duty, after obtaining a history of the case, should be to make a careful and thorough bimanual and specular examination of the uterus and pelvic organs. It is possible that the infection may have originated from pus in the pelvis existing before labor, due to pyosalpinx, ovarian or

appendical abscess. The uterus should be gently explored with finger or dull curette and any placental débris or clots removed. If possible, a bacteriological culture should be taken directly from the uterus, and then an intrauterine douche, preferably of sterile water or normal salt solution, should be given. Abrasions of the cervix and vagina should be treated with a solution of chloride of zinc or compound tincture of iodine. Should the bacteriological examination reveal saprophytic infection, the douche may be repeated if the temperature remains elevated and the foul-smelling discharge continues. If it proves to be a case of streptococcus infection, further local treatment is contraindicated, as it cannot possibly reach the organisms, which have penetrated beyond the reach of such measures. If the infection has spread into the broad ligaments, as may be manifested by the extension of the pain over the region and the revelation of a boggy sensation on vaginal examination, the cellulitis and localized peritonitis must be combated by the application of the cold pack, or preferably the rubber coil, to the lower abdominal region, and the giving of anodynes to relieve pain. General peritonitis will call for the same line of treatment in a more vigorous manner.

I am confident that the repeated giving of intrauterine douches and the use of the curette in streptococcus infection is decidedly harmful. The danger of introducing other germs and causing a mixed infection and the production of more or less traumatism of the endometrium, thereby breaking down Nature's protective zone of leucocytes and opening up new avenues for widespread systemic infection, are in my judgment strong arguments against injudicious local treatment.

For the surgical treatment it is impossible to prescribe any fixed rule for guidance; the judgment and skill of the physician and the condition of the patient must determine. It is not justifiable to open the abdomen without some physical reason. The different forms of sepsis must be thoroughly understood, as the operation will hardly be required except in pathogenic infection. When the operation is done early many organs are likely to be needlessly sacrificed, and if done late it will surely increase the mortality. When there is continued fever, together with physical signs, operation is permissible; without the latter the general symptoms would indicate systemic infection. Of course, where there is pus, be it in the pelvis, pleural or peritoneal cavity, or elsewhere, it should be evacuated at once.

The general treatment will embrace stimulants, strychnia and nitroglycerin to strengthen the heart, cold pack or sponging to reduce the temperature. Antipyretics should not be used, as they depress the heart; and quinine is of little avail, except in malaria—besides, given in large doses, it is apt to derange the stomach. Morphia may be required to allay pain and procure sleep. Nuclein and albumose have been used for the purpose of increasing leucocytosis, and, in conjunction with normal salt solution by the bowel or subcutaneously, have proved excellent adjuvants to other measures.

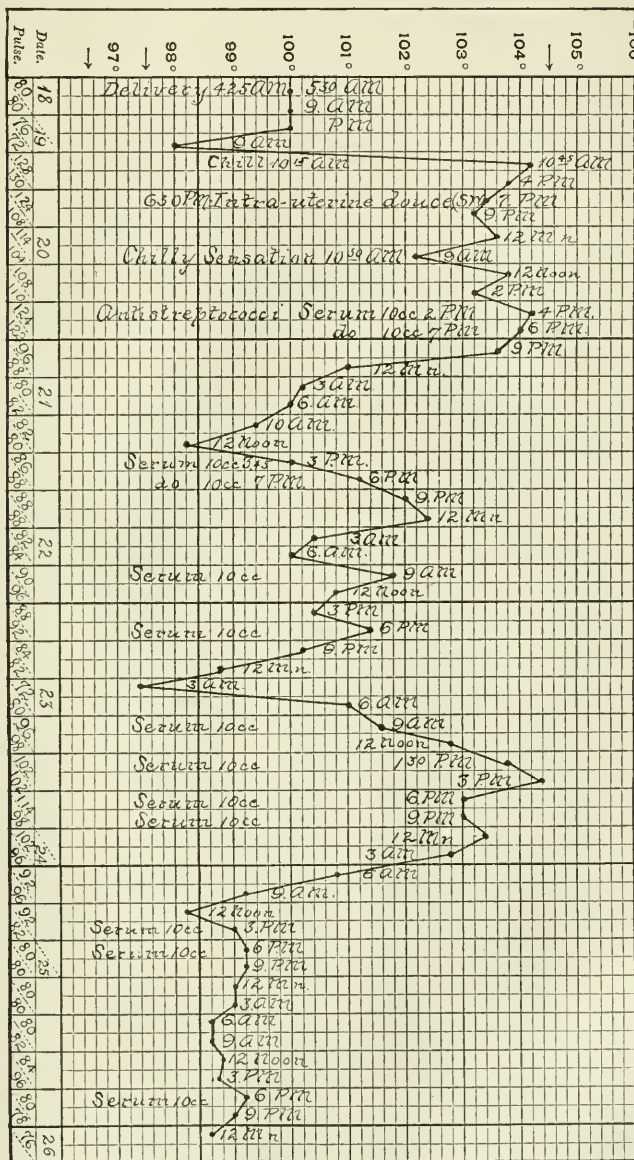
During the past few years experiments have been made to destroy or neutralize the streptococcus infection by means of the antistreptococcus serum. So far the statistics have not been very favorable. Fry has collected 119 cases treated with serum, 77 cured, 42 died, mortality 35 per cent. From a careful analysis of the literature many of the failures may be accounted for in one or more of the following ways: first, lack of bacteriological confirmation of the character of the infection; second, inferior quality of the serum employed; third, injudicious local treatment; fourth, badly selected cases; fifth, delay in the use of the serum. It is important to determine whether the case be due to simple streptococcus, mixed infection, or some other pathogenic organism. Curative effect is only claimed for simple streptococcus infection, although some cases of mixed infection are reported where, after the use of local treatment in conjunction with the serum, recovery has followed. Marmorek records 15 cases in which the serum was employed, 7 of which were due to pure streptococcus, and all recovered; 5 were due to a mixed infection of the streptococcus and staphylococcus, 2 of which died; 3 were due to a mixed infection with the streptococcus and bacillus coli, and all died. The prognosis is, therefore, distinctly more favorable when the case is one of simple streptococcus infection. In many cases the serum was not used until all other measures had been exhausted and the patients were *in extremis*.

With the view of observing the effects of the serum, I determined at the first opportunity to treat cases by withholding local and general remedies as far as consistent with the welfare of the patient.

CASE I.—Mrs. A., age 33, admitted to Columbia Hospital November 7, 1898, with history of having had a gush of water about a week previous, and thinks she has passed the normal period of gestation. Examination proved the case to

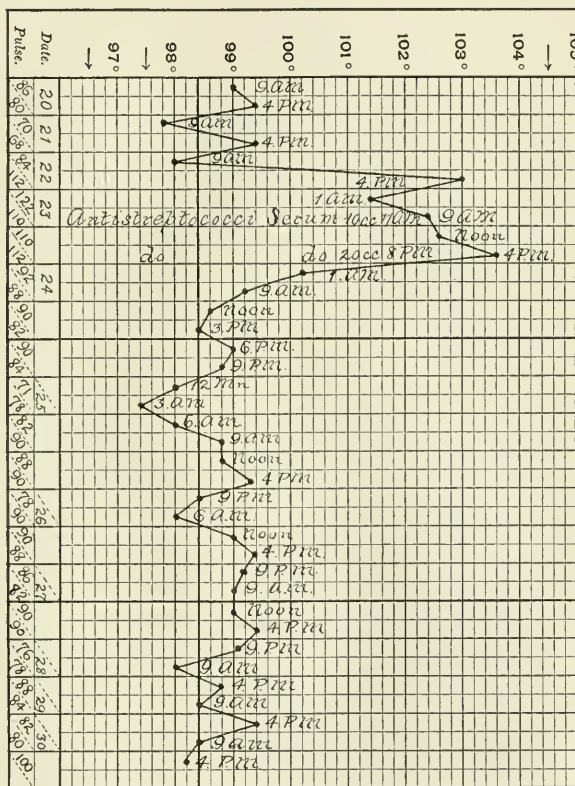


be one of hydrorrhea gravidarum. She left the hospital after a few days and returned in labor November 17, 11 P.M. The



ously twenty minutes later. No vaginal examination made during or subsequent to labor, but the assistant supported the perineum during the delivery of the head. No douche given. Temperature  $100^{\circ}$  for twenty-four hours after delivery. November 19, 9 A.M., temperature  $98^{\circ}$ , pulse 72. At 10 o'clock patient had a severe chill, followed by a rise of temperature to  $104.2^{\circ}$ , pulse 128. Had headache and vomiting, and complained of severe pains in the lower part of abdomen; lochia normal. At 7 P.M. temperature  $103.5^{\circ}$ , and, as the uterus was high up and large, an intrauterine douche of sterile water was given with the object of removing any possible retained clots or membrane. The douche returned clear. A culture of the lochia was taken by the Döderlein tube, and the bacteriological examination showed it to be a pure streptococcus infection. November 20, 9 A.M., temperature  $102.2^{\circ}$ , pulse 104, and complained of chilly sensation. Ten cubic centimetres of Marmorek's antistreptococcus serum were injected at 2 P.M. At 7 P.M. temperature  $104^{\circ}$ , pulse 122; patient nauseated and has vomited several times. An additional 10 cubic centimetres of serum was injected two hours subsequently; temperature falling, and at midnight was  $101^{\circ}$ , pulse 88. Nausea and vomiting has ceased, and patient is in a profuse perspiration and feeling quite comfortable. Midday, November 21, temperature  $98.2^{\circ}$ , pulse 80; resting quietly and perspiring. At 3 P.M. temperature  $101.4^{\circ}$ , pulse 86; 10 cubic centimetres of the serum given, and, as the temperature was still rising at 10 P.M., 10 cubic centimetres more were administered. At midnight temperature  $102.4^{\circ}$ , pulse 88; complains of headache and is restless. November 22, 9 A.M., temperature  $101.8^{\circ}$ , pulse 90; perspired very freely after midnight; slept very little, and not so bright as on yesterday; 10 cubic centimetres of serum given, and, as the desired effect had not been obtained at 6 P.M., an additional 10 cubic centimetres was administered. This was followed by a gradual decline to normal at midnight, attended by refreshing sleep. November 23, 9 A.M., temperature  $101.6^{\circ}$ , pulse 96; injected 20 cubic centimetres. At 1 P.M. temperature  $103^{\circ}$ , pulse 102; 10 cubic centimetres more were administered. At 6 P.M. temperature unchanged, pulse 114; gave 10 cubic centimetres. This was followed by a reduction of pulse to 98, but no dropping of temperature. At 9 P.M. another 10 cubic centimetres was given, and this was followed by a gradual decline of temperature, attended with refreshing sleep throughout the night. November 24, noon, temperature  $98.2^{\circ}$ , pulse 92; 10 cubic centimetres

given to anticipate an evening rise, and repeated at 9 P.M.; 10 cubic centimetres were given at 6 P.M. November 25, and a like amount November 26. Altogether 140 cubic centimetres were used. I am satisfied that the last three or four injections were unnecessary, as a slight continued rise of temperature after the 24th was due to an abscess forming on the right side of the abdomen at the site of one of the injections. This was

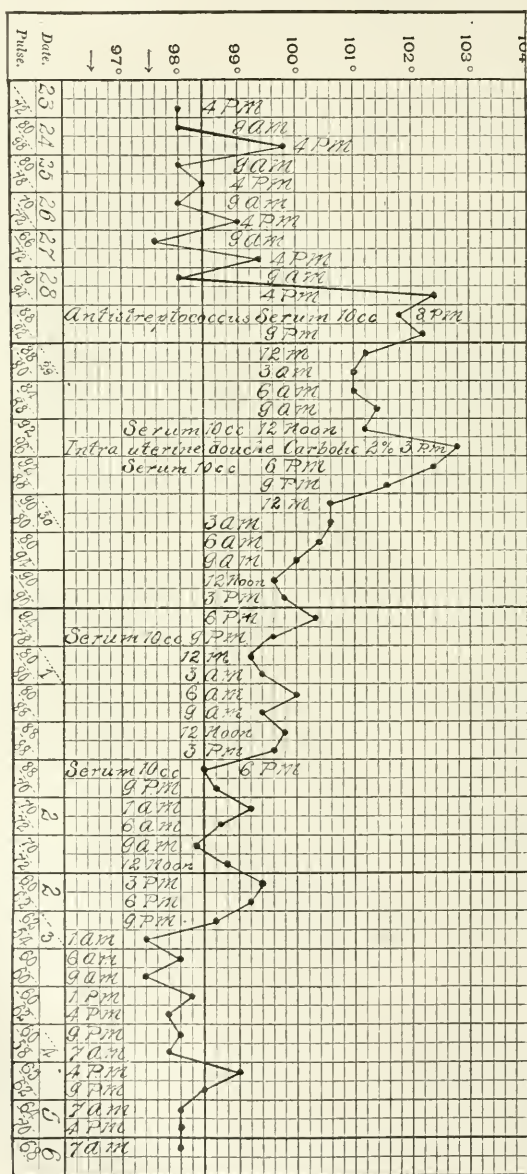


### CHART 2.—CASE II.

freely opened and bacteriological examination of its pus showed presence of streptococci.

CASE II.—J. S., multipara; admitted to Columbia Hospital in labor December 19, 9 A.M., normal birth at 6 P.M., and placenta delivered spontaneously one-half hour later. No vaginal examination made either during or after labor and no douche was given. On the afternoon of the third day patient complained of chilly sensation and headache, followed by a rise

in temperature to  $103^{\circ}$ , pulse 112. Bacteriological examination of lochia showed streptococcus and staphylococcus. December





103.6° at 4 P.M., 20 cubic centimetres more were given. This was followed by a gradual decline to normal at 3 P.M. on the following day, and it never rose again above 99.3° while patient was in hospital. In this case the presence of streptococcus had been demonstrated by bacteriological examination before the clinical manifestations of the disease, and perhaps the early exhibition of serum might explain the prompt and favorable influence following its use.

Through the courtesy of Dr. Fry I am permitted to report the following case:

CASE III.—R. M., primipara. Was delivered at Columbia Hospital November 23; normal labor. Culture taken from uterus on the 25th shows streptococcus pyogenes. At noon the fifth day after birth complained of chilly sensation, and at 4 P.M. temperature had risen to 102.4°, pulse 94. At 8 P.M. ten cubic centimetres of serum were given, and temperature gradually fell to 101.2° at midnight and remained so until noon the following day. At this time ten cubic centimetres of the serum were injected; 3 P.M., temperature 103.8°, intrauterine douche two per cent carbolic acid given; 6 P.M., temperature registered 102.4°, the third ten cubic centimetres of serum administered, and temperature gradually declined to 100° in the succeeding twenty-four hours; 6 P.M., November 30, ten cubic centimetres given, and temperature registered normal December 1 at the same hour. The fifth and last dose of ten cubic centimetres was administered, and patient's temperature went above 99.5° but once afterward. This case, in addition to the serum, was given vaginal douches of sterile water three times a day. With the exception of the intrauterine douche given in the first case, neither the first nor second case received any local treatment.

While it is impossible to say of how much value the serum *per se* was in these cases, the gradual lowering of the temperature in from seven to twenty-four hours, with a corresponding reduction and steadying of the pulse, attended with profuse perspiration and a marked improvement of the subjective condition after each injection, it would seem, in the absence of any other measure being used, to have exercised a beneficial and salutary influence.

In conclusion I desire to express my thanks to Dr. James C. Carroll, pathologist to the hospital, who performed the bacteriological work, and also to Drs. Mills, Ferguson, and Delaney, who rendered valuable service in the care of patients.

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## THE OCCURRENCE OF THE STREPTOCOCCUS PYOGENES IN GYNECOLOGICAL DISEASES.

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IN going over the bacteriological records of the gynecological department of the Johns Hopkins Hospital, it is noticeable how seldom the streptococcus pyogenes is encountered as the cause of inflammatory conditions. I have thought it profitable, therefore, to collect the instances in which this micro-organism

was met with at the original operation, and to see what information it is possible to gain from such cases. In the records kept by me of the bacteriological examinations of inflammatory conditions of the pelvic structures from October, 1894, to June, 1896, and again from October, 1897, to July, 1898, I find a complete bacteriological examination of 127 inflammatory cases made up of the following:

1. Pelvic abscesses and exudates.
2. Cases of pelvic peritonitis with encysted fluid.
3. Cases of sactosalpinx (pyosalpinx and hydrosalpinx).
4. Ovarian abscesses.
5. Suppurating cysts and infected myomata.

Cases of appendicitis or general peritonitis following this condition, peritonitis following operation, kidney, gall bladder, and urinary bladder cases, are not considered in this paper.

In the 127 cases examined the streptococcus pyogenes was encountered seven times. The histories of the cases are, briefly, as follows:

CASE I.—M. B., white, age 38 years. Admitted February 26, 1895, complaining of pain in pelvis and of leucorrhea. Married twenty years. Ipara, nineteen years ago; labor normal; no definite puerperal sequelæ remembered; no miscarriages. Menses regular until recently, free, dark, clotted, and painful, the last period five months ago. Leucorrhea: A thick, yellow, copious discharge, the date of commencement not remembered.

*The Present Illness* dates from two years prior to admission, although she has not felt entirely well since labor. It began with pain in the lower abdomen, accompanied by fever, abdominal distension, and constipation. This attack lasted one month, but after recovery the patient felt debilitated and suffered from soreness in the lower abdomen. She had a similar attack one year ago, and a third five months ago. She now has constant pain in the lower abdomen, frequent and burning micturition, and painful defecation. Temperature 99° F., pulse 100. She is emaciated and in poor general condition.

*Operation* (operator, Dr. Kelly).—Laparotomy. A pelvic abscess lying in Douglas' cul-de-sac, containing 170 cubic centimetres of thick pus with a garlicky odor, was removed along with the uterus, tubes, and ovaries.

Convalescence was uninterrupted.

*Bacteriological Examination* of pus showed the streptococcus pyogenes and two unidentified bacilli.

CASE II.—Mrs. M. B., white, age 50 years. Admitted May 5, 1896, complaining of pain in the lower abdomen. Married twenty-three years. VIpara. Labors normal except the last one, twelve years ago. She then had antepartum hemorrhage,

and was instrumentally and prematurely delivered. She was ill following labor four and a half months. Menses ceased December, 1895; regular before and otherwise normal. Leucorrhea: For two years has suffered from an offensive, irritating vaginal discharge.

*The Present Illness* dates from the last labor. For six weeks following it she was delirious, and for four and a half months was confined to her bed. Following this period she had almost constant backache, but led an active life. Four years ago she had an attack of severe abdominal pain lasting three weeks, but had no fever. Two years ago a similar attack. In December, 1895, she had an attack of severe abdominal pain, with distension, fever, extreme abdominal tenderness, nausea, and vomiting. Although she feels better, she still suffers with pain and tenderness in the lower abdomen. General condition fair. Pulse 90, temperature 99° F.

*Operation* (operator, Dr. Kelly).—Vaginal puncture posterior to cervix. The whole pelvis posteriorly and on both sides filled with a parametritic exudate, giving the floor of the pelvis a bone-like hardness. Uterus scarcely to be distinguished from masses. One drachm of pus escaped.

*Convalescence*.—Slow improvement. Discharged in six weeks. Now in good health.

*Bacteriological Examination*.—Cover-slips from pus unsatisfactory. Cultures gave a pure growth of streptococcus pyogenes.

CASE III.—A. W., white, age 33 years. Admitted May 6, 1896, complaining of pain in the abdomen. Married eleven years. IVpara, the last labor two years ago; labors normal; no puerperal sequelæ remembered. Two miscarriages, the last one being three months ago at third month. Menses are regular, profuse, painful, and last five to seven days. Leucorrhea: Always has had a slight white, non-offensive, non-irritating vaginal discharge.

*The Present Illness* dates from the miscarriage, since which time she has had constant pain in the back and pain and tenderness in the lower abdomen. The pain is at times sharp and severe, and is worse on the left side. Although not confined to her bed, she has to lie down most of the time, and lies with the left thigh flexed on the trunk. She has to stoop when walking. Has fever and chilly sensations. Micturition is painful and increased in frequency. The urine is albuminous and contains pus. Defecation is painful. She is anemic and has lost flesh. Temperature 99° to 105° F., pulse 120 to 140.

*Operation* (operator, Dr. Kelly).—Vaginal puncture of pelvic abscess (a dense, hard mass filled the pelvis to the symphysis pubis, pushing the uterus in retroposition; infiltration along the left side of the vagina above). Scissors thrust into abscess; 125 cubic centimetres of pus escaped. This was yellowish-white, but not offensive. The abscess cavity extended into posterior part of pelvis through broad ligament on left side. Drained.



*Convalescence*.—Slow. Patient discharged in one month, improved. Heard from in 1899: condition not improved; sup-puration still going on.

*Bacteriological Examination*.—Cover-slips and cultures showed the streptococcus pyogenes alone.

CASE IV.—M. N., white, age 22 years. Admitted December 15, 1897, complaining of "a lump in stomach" and pain. Married three years. Ipara, the youngest child being 2 months old. No miscarriages. Menses at fourteenth year, irregular (two to four weeks), not very painful. Has not menstruated since labor. Leucorrhea: A thin, white, offensive vaginal discharge.

*Present Illness* dates from the last labor, October 27, 1897. Pain in the right inguinal region followed immediately after labor, but she was soon on her feet and doing housework. Three weeks after labor she was seized with severe pains in the right lower abdomen, causing her to go to bed. A swelling was at this time first noticed at the seat of pain, and this has increased in size along with increase in pain ever since, although she has not been confined steadily to her bed. Bowels constipated; tongue coated. Temperature 99° F., pulse 128.

*Examination*.—Patient lying with thigh flexed on trunk at an angle of thirty degrees. Abdomen somewhat tympanitic. Tumor mass with sharply defined margins felt in right iliac fossa. It extends as high as umbilicus.

*Operation* (operator, Dr. Russell).—Vaginal puncture attempted and abandoned, as the mass could not be reached; an incision three centimetres long made in right linea semilunaris. The anterior wall of the mass was one centimetre in thickness and dense. The mass consisted of several small pus cavities extending from the right uterine cornu to the level of the umbilicus. The attempt to thoroughly open up the mass caused the peritoneal cavity to be invaded. On account of free oozing into the peritoneal cavity a second incision was made in the linea alba and oozing was checked by tampons. Both ovaries and left tube appeared normal. The intestines and omentum were adherent to the inner side of the mass.

*Convalescence*.—The pus cavity healed from the bottom, and the patient was discharged in six weeks in excellent condition.

*Bacteriological Examination*.—No distinct bacteria seen in cover-slips. Cultures gave a pure growth of streptococcus pyogenes.

CASE V.—R. B., white, age 31 years. Admitted March 31, 1898, complaining of pain in the right lower abdomen. Married nine years. VIpara; youngest child 11 weeks old; labors non-instrumental. She had fever following the last labor. Perineum was torn at the last labor. Menses began at twentieth year, regular, painless, and moderate in amount. Has not menstruated since her last labor. Leucorrhea: Following labor she had a whitish vaginal discharge, which has almost ceased.

*The Present Illness* dates from last labor. Midwife in

attendance. Labor natural, but perineum was torn. Since labor she has had an irregular fever and pain in the right iliac region, with vomiting and constipation. Patient is well nourished and of good color. Heart and lungs negative. Temperature  $100^{\circ}$  to  $101^{\circ}$  F., pulse 90. Urine contains a small amount of albumin and pus.

*Operation* (operator, Dr. Russell).—Median incision. Uterus four times its normal size and firmly fixed in pelvis by exudates in each broad ligament. Omentum adherent to anterior surface of uterus and bladder; loops of intestines adherent to fundus uteri behind and to the right. Left ovary the size of a lemon, cystic, containing clear fluid. Left tube swollen and injected, and adherent to posterior part of broad ligament. Right tube and ovary normal. In the left broad ligament in front is an exudate of bony hardness extending from the uterus to the pelvic wall. Right broad ligament thickened, but not to the same extent as left. Vaginal puncture regarded as impracticable. An incision made five centimetres long, parallel to Poupert's ligament on left side. About three ounces of thick, yellow pus escaped. The bladder lay in contact with the abscess cavity. The peritoneal cavity was invaded at the upper part of the abscess cavity. Gauze drain. The perineum showed a complete tear. A myoma two centimetres in diameter in cervix. Curettage showed no retained membranes. Convalescence satisfactory. No evidence of peritonitis. Cavity irrigated. She was discharged in six weeks.

*Bacteriological Examination*.—Cover-slips showed streptococci. Cultures gave a pure growth of streptococcus pyogenes.

CASE VI.—A. N., white, admitted May 10, 1898; Lithuanian. As neither patient nor husband spoke any language other than their own, it was impossible to obtain a complete history.

*The Present Illness* began with childbirth, March 25, 1898; three days later she was taken ill with chills and fever. She was out of bed at times, but never well, complaining of constant pain in the abdomen and of leucorrhea. Has gradually gotten worse. Very weak. General condition bad. Temperature  $103^{\circ}$  F., pulse 115. Urine contains albumin and pus. Heart and lungs negative.

*Examination*.—Posterior and right lateral portions of pelvis filled with dense, indurated tissue. The body of the uterus apparently pushed toward the left by the mass, which extends into left broad ligament. The mass is very irregular and extends several centimetres above symphysis pubis. Abdomen distended. Per rectum the mass is found pressing on the rectum, and in one place there is a fluctuating area, as if it were about to rupture into the bowel.

*Operation* (operator, Dr. Ramsay).—A small amount of thin, sero-purulent fluid followed vaginal puncture. The indurated tissue on either side broken down with finger. Peritoneal cavity apparently entered, as a probe was passed a long distance up. Cavity packed with gauze.

*Convalescence*.—Twenty-four hours after operation her tem-

perature was 102° F. and her pulse 128. These had gradually gone up and the patient felt very ill. She suffered from severe abdominal pain and tenderness. Respirations shallow and weak. She received twenty cubic centimetres of antistreptococcus serum, and after purgation gradually improved and was discharged May 31.

*Note, May 31:* "Patient has done wonderfully well during the last ten days. Since May 24 her temperature has been normal. She walks about, has a good appetite, sleeps well, feels well, and wishes to go home." Examination showed that the mass above the symphysis has entirely disappeared. There remained a considerable amount of induration in the pelvis, but much less than on entrance. Uterus small, in good condition, and not tender.

*Bacteriological Examination.*—Cover-slips gave chains of cocci. Cultures gave streptococcus pyogenes in a pure growth.

CASE VII.—H. J., colored, age 40 years. Admitted October 18, 1897. Married twenty-one years. IIpara; children 12 and 11 years old; no puerperal sequelæ remembered. Menses very irregular for past three years. For the past year has had an almost continuous flow.

*The Present Illness* began five years ago with pain in the left iliac region; this has gradually increased in severity. Menses almost continuous and profuse. A growing tumor has been recently noticed in the lower abdomen. Frequent micturition. General condition extremely bad. Temperature 104° F., pulse 136. Heart, no murmur, but a reduplication of the second sound. Lungs, harsh breath sounds and dry râles, otherwise negative.

*Operation* (operator, Dr. Kelly).—Hystero myomectomy. Sloughing submucous myoma. Greatly enlarged uterine cavity. Death during operation.

*Bacteriological Examination.*—Cover-slips of secretion from uterine cavity gave streptococci and a short bacillus. Cultures gave the streptococcus pyogenes and an unidentified bacillus. There was probably a general streptococcus infection, but, as no autopsy was permitted, this was not proved.

*How often is the Streptococcus Pyogenes encountered in Gynecological Operations?*—Satisfactory statistics on this point are difficult to obtain, inasmuch as few writers have furnished results of bacteriological examination upon all kinds of cases of pelvic inflammation, although statistics confined to cases of pyosalpinx and hydrosalpinx are not uncommon. I have collected 620 cases from the statistics of Zweifel, Menge, Witte, Prochownik, Hartman and Morax, Martin, and Wertheim, all of which except 69 were instances of pyosalpinx or of acute salpingitis; and of the whole 620, in only 36, or about 6 per cent, was the streptococcus proved to be the infecting agent.

In our 127 cases of inflammatory conditions of the pelvic organs the streptococcus was found in 7 instances, or 5.5 per cent, so that our figures at first sight would correspond nearly with those of the authors just quoted. It is apparent from these figures that the streptococcus is comparatively rarely met with at gynecological operations. Nevertheless it is encountered sufficiently often to be worthy of serious consideration, and the question naturally arises:

*In what Class of Cases is it Encountered?*—Of the 7 cases given in the beginning of this article, four were undoubtedly of puerperal origin and can be classed as instances of puerperal parametritis. In Case 2 the striking sign on palpation was the bony hardness of the mass filling the posterior and both lateral portions of the pelvis, and which was found to contain only a small quantity of pus. The tubes and ovaries were not seen, and it cannot be stated whether they were involved or not. In Case 3 the mass filled the left side of the pelvis in the broad ligament, extended to the posterior pelvis, and filled the loose connective tissue between the uterus and bladder, pushing the uterus into retroversion. It was likewise of bony hardness and contained only 125 cubic centimetres of pus. The tubes and ovaries were not seen. In Case 5 there was an exudate of bony hardness in both broad ligaments, containing only 3 ounces of pus. The left ovary and the right tube and ovary were not involved, but the omentum and intestines were adherent. In Case 6 the posterior and both lateral segments of the pelvis were filled with dense indurated tissue, and the mass extended several centimetres above the symphysis pubis. Only a little sero-purulent fluid was found on puncture through the vagina.

In Case 4 there was doubt as to whether the infection had originated from the puerperal uterus or from the vermiform appendix. The history favored the former view. The mass extended from below the uterine cornu to the height of the umbilicus in the right side. The mass consisted of small pockets of pus in dense indurated tissue. Both ovaries and the left tube were free. In Case 1 the mass differed in nature from those just described. Here we had to deal with a definitely localized pelvic abscess occupying the cul-de-sac of Douglas. The streptococcus pyogenes was found here along with other bacteria, as in Case 7, where the infection occurred in a necrotic submucous myoma. In the other five cases it was found alone.



Although nearly every trustworthy investigator has found the streptococcus in cases of pyosalpinx, I am convinced that in cases of pyosalpinx proper this organism is but rarely encountered. In not one of such cases have I found the streptococcus. On the other hand, in the cases of dense pelvic exudates or parametritis, with little or no pus, or pus in pockets scattered throughout hard, indurated tissue, and in which the tubes and ovaries are not usually involved, one may confidently expect to find the streptococcus. In many of these cases the tube on one or perhaps both sides may take part secondarily in the process, and doubtless many of the cases classed as pyosalpinx fall in this class. Here, of course, the micro-organism will be found in the tube also. We may also look to encounter the streptococcus in such cases as our Case 7, where there was a submucous myoma undergoing necrosis, with necrotic masses of tumor and decomposing blood in the uterus, cervix, and vagina. In puerperal infections with the lesions described above, one can state with a great degree of certainty that the micro-organism causing the infection is the streptococcus. Of course not every puerperal infection is due to this bacterium. The gonococcus, the staphylococcus aureus and albus, the colon bacillus, and many other bacteria have been found in puerperal uteri, but they certainly do not, as a rule, cause the lesions described.

*The Point of Entrance and Manner of the Infection.*—That most of the cases of inflammatory disease of the female genital organs in which the streptococcus is the infecting micro-organism occur in the puerperium there can be no doubt. That the streptococcic puerperal infection is nothing more nor less than a wound infection is definitely settled. Hence the micro-organism can gain entrance through any portion of the genital tract where there is an abrasion of the surface, be it in the vulva, vagina, or uterus. While the investigations of Bumm, Widal, and Krönig would indicate that the place of predilection for the entrance of the infecting bacteria is the site of the placenta, other authors, as Von Winckel, Fritsch, Spiegelberg, and Birch-Hirschfeld, think that the primary site of infection is to be looked for in the cervix or portions of the genitalia other than the cavity of the corpus uteri. It seems also well established that while the micro-organisms are generally carried in on the hands of the nurse or the doctor or on instruments, they can also gain entrance by direct extension from the surface of the body. In rare cases, perhaps, in which

there is an old localized streptococcus infection, this may be lighted up by the labor producing raw areas and bruised or necrotic tissue.

In inflammatory cases in which the original lesion has been produced by some other micro-organism and in which there have been adhesions to or rupture into the intestines, a direct invasion of the streptococcus from the intestinal canal is possible. Menge has recently emphasized the fact that in cases of submucous sloughing myomata, carcinomata, or necrotic polypi, with dead nutrient material, such as blood clot or necrotic masses, in the genital tract, the streptococcus can gain entrance, without the aid of external agents, by direct extension from the surface of the body. In some cases operations upon the genital tract may have been the cause of the localized streptococcus infection which is met with at a subsequent operation. This class includes abortions instrumentally produced. Finally, one occasionally meets with localized lesions in the genital tract produced by the streptococcus which has gained entrance into the general circulation at some other point. In such cases the patient has previously had a streptococcus sore throat or an erysipelas or other local infection; the microbe has seemed to select a ruptured corpus luteum or a poorly nourished myoma or cyst as the point of least resistance, and has there produced the lesion which the gynecologist encounters. In my cases four were undoubtedly, the fifth probably, of puerperal origin; one (Case 1) was probably an extension from the intestinal tract; and in the remaining one (Case 7) the micro organism undoubtedly entered through the vagina, and had found in the cervical canal and in the uterine cavity conditions favorable for its growth and extension. The necrotic myoma was thus invaded, and through it there was finally a systemic infection.

*The Route of Invasion.*—Bumm has described three cases of puerperal fever with a lymphatic infection. The streptococcus was demonstrated by cultures. The histological examination of the tissues following autopsy gave the same picture. The endometrium was necrotic in places and contained many streptococci. Generally the muscle lying immediately under the endometrium showed a poorly developed zone of reaction. In many places this was entirely wanting. He found the lymph channels, especially those under the placental site, filled with streptococci. The patients all died of purulent peritonitis, and although he could not follow the bacteria directly through the lymph channels to the peritoneum, he

thought it was by extension through these paths that the peritonitis occurred. In one of his cases a venous thrombus also contained cocci. He gives two cases in which the streptococci had followed thrombi in the uterine veins to the peritoneal surface of the uterus. Widal reports twelve cases in which he made researches as to the route of invasion. He found in eleven of these cases the bacteria in lymph channels. He found the bacteria often in blood vessels also. He thought the lymph channels were the route preferred, but found the micro-organisms also generally in the blood vessels either of the uterus or of other organs in the body. Krönig reports three cases, and they are of such interest that I will give brief abstracts of them:

CASE I.—Patient had a prolapsus of the anterior and posterior vaginal walls. Ulcer of cervix (vaginal portion) the size of a ten-pfennig piece. The ulcer, in spite of treatment, would not heal. Twenty-four hours after labor there was a chill, temperature  $40.9^{\circ}$  C., pulse 130; on the second day the patient had four chills, pulse 170; on the fourth day vomiting began, which increased until death. The autopsy showed little change of the uterus macroscopically; a slight purulent covering of the endometrium; purulent peritonitis. Cultures showed streptococcus pyogenes. Microscopically, nothing in cervical tissues. No bacteria in blood vessels, lymphatics, or in tissues. In the uterine endometrium (not at the site of the placenta) the cocci had not penetrated into the tissues. Bacteria were not found in the lymphatics or blood vessels beneath the zone of small round cells which lay immediately under the decidua. At the site of the placenta he found three large thrombi, which were infected with cocci. The cocci had not penetrated the vessel walls, the neighborhood of which showed small round-cell infiltration. The other blood vessels and the lymph spaces were free from bacteria. The thrombi lay in the decidua beneath the zone of small round-cell infiltration and extended into the muscle, but apparently did not reach to the peritoneal coat of the uterus. Krönig made serial sections and found numerous purulent thrombi in the parametrium. He could not prove that the streptococci left the vessels. That the bacteria had not entered the peritoneal cavity through the tube was proved by sections near the uterine cornu. Although the fimbriated extremity of the tube contained pus and bacteria, neither could be found near the uterine end. He concludes that the bacteria could have entered the peritoneal cavity only through the blood channels, although he could not observe their direct passage.

CASE II.—The cause of infection here was the introduction of a bougie to bring on premature labor on account of albuminous urine with edema of the legs and external genitalia. The clinical picture was one of general sepsis, high temperature,

rapid pulse, vomiting, diarrhea, and loss of consciousness with death on the fourth day. Histological examination showed a condition somewhat similar to that in Case 1. Here, however, the streptococci were found in the open as well as in thrombosed vessels of the uterus at the site of the placenta. The vessels of the kidney contained bacteria, and the heart and lungs showed signs of general sepsis. The endometrium of the body of the uterus (not the placental site) showed only a superficial inflammation, and the cervix showed no sign of inflammatory change. Krönig regarded the infection as having taken place by way of the blood vessels directly, and thought the placental site to be the point of entrance.

CASE III.—This was a case of phlegmasia alba dolens, which resulted from an infection occurring through a small tear of the labium majus. Death occurred on the sixth day after labor, three days after the onset of the fever. Nothing was found in the uterus on histological examination. The cavity was sterile. Cultures from the thigh gave the streptococcus pyogenes. In the subcutaneous connective tissue, and following the bands of connective tissue deep into the muscle and in the fat, were numerous streptococci. The large vessels were free from bacteria.

Of my 7 cases 6 recovered; in the seventh no careful histological study was made of the myomatous uterus. The myoma was largely necrotic, and, as no autopsy was held, very little information could have been obtained by staining for bacteria in the tissues. From the work of the authors above quoted there can be little doubt that the streptococcus gains entrance into the human organism by way of both lymph and blood channels, preferably by the former. It may perhaps enter the peritoneal cavity by way of the Fallopian tubes, although this is seldom the case.

*The Characteristic Lesions.*—The streptococcus has been found in cases of suppurating tumors of the pelvic organs and in inflammatory conditions of the tubes and ovaries. Bearing in mind, however, its route of invasion, we find lesions which may be regarded as characteristic of its presence. Where the micro-organism follows those lymphatics or thrombosed veins which lead to the peritoneal covering of the uterus or pelvic viscera, it invades the peritoneal cavity, causes acute peritonitis and generally death. A chronic general peritonitis is perhaps never due to the streptococcus pyogenes. Where the circulating blood is invaded there ensues a general infection of the whole organism. When the lymphatics or thrombosed vessels leading into the tissues surrounding the uterus are the routes of invasion, we have the lesions which the gynecologist often-



est encounters. These are admirably described in Winter's "Gynäkologische Diagnostik" under parametritis. They were seen in five of our seven cases. There is, at first, a softish, elastic swelling, which, as absorption goes on, becomes harder, so that it frequently at last has a bony consistence. Often there occurs pus formation, usually in the form of small abscess cavities scattered throughout the mass. As it follows the parametritic connective tissue, the exudate may have various positions in regard to the uterus. It seems generally to lie in the posterior and lateral region, but it may lie anteriorly, antero-laterally, or posteriorly; or it may fill the whole pelvis, taking in the rectum and vagina in its extension. Again, pushing the layers of the broad ligament upward, it may form a large tumor mass extending into the abdominal cavity, or, by extending in the retroperitoneal tissues, it may form a tumor lying on the posterior, lateral, or anterior abdominal wall, not usually extending above the umbilicus or across the median line. In other cases it may cause tumors of the false pelvis. It may include the upper part of the vagina in its extension. It may displace the bladder from its normal position, giving rise to urinary symptoms, or so constrict the lumen of the intestine as to cause almost a total obstruction of the bowel.

The most important points in diagnosis are the history of the case, the intimate connection of the tumor to the uterus and the neighboring organs, the immobile condition of the uterus, and the bony hardness of the mass which is usually found when the patient enters the gynecological clinic. When supuration takes place the abscess may burrow in various directions and rupture into the peritoneal cavity, bladder, vagina, or in the perineal, gluteal region, etc.

I am not prepared to state that the lesions above noted are never caused by any other bacteria, but the streptococcus is certainly the exciting agent in by far the large majority of such cases. In the one hundred and twenty-seven cases examined it was the only micro-organism found when the lesions were such as above described.

*The Length of Life of the Streptococcus in the Human Body.*—I find in the literature but little bearing upon this point. Krönig states that he has never observed this organism in the endometrium later than six weeks after labor, but that in a parametritic abscess opened one hundred days after labor he found the living streptococcus in the pus. By referring to our cases it will be observed that in Case 1 the patient's illness

began two years prior to admission. It is impossible to say just when the invasion occurred. It probably came from the bowel, but, strange to say, the bacillus coli communis was not found in the pus, or was at least not identified. In Case 2 the original streptococcic infection occurred undoubtedly at a labor twelve years previous to admission. Four years, two years, and five months, respectively, before admission she had had what seemed a lighting-up of her previous illness, so that one may say with a fair degree of certainty that the micro-organism had lived at least five months and possibly for twelve years. In this case there was only about a teaspoonful of pus, although the pelvis was filled with a dense mass of stony hardness. In Cases 3, 4, 5, and 6 the bacteria had existed in a condition capable of culture for eight, eleven, and six weeks, respectively. In Case 7 the history gives no indication as to the time of invasion. Taking these cases in connection with those of Krönig, one may definitely state that the streptococcus may live in the human organism for months and perhaps for years. As it can be cultivated without the least difficulty in these cases, it can be regarded as capable of infecting other persons. In this way the streptococcus shows characteristics markedly different from those of the gonococcus, which lives a comparatively short time in the pus cavities which it forms, although apparently almost indefinitely in mucous surfaces.

*Prognosis.*—It may not be amiss here to say a word as to prognosis, not alone as to the life of the patient, but also as to the possibility of child-bearing. Only one of the seven patients died, and this was a case of general streptococcic infection, the woman succumbing under operation. The others were discharged from the hospital in a much improved condition in from two to eight weeks after operation. Only three of the six have since been heard from. None have been pregnant. Two are much better and feel well, and the third is worse; from her account it may be conjectured that suppuration is still going on in the pelvis. Dr. Charles P. Noble reports 15 cases, which, from the histories and description of the lesions, were probably most of them cases of streptococcus infection. No bacteriological examinations were reported. All recovered and eight of the women have since been pregnant. Pregnancy frequently occurs after a streptococcic parametritis when the tubes and ovaries are not involved in the process.

In four of the six patients who recovered the peritoneal cavity was invaded at the time of operation, but in only one of

these did symptoms of peritonitis develop. The symptoms in this case subsided in from forty-eight to seventy-two hours, and the patient recovered rapidly and was discharged "wonderfully improved" in two weeks. We know that where virulent streptococci in minute quantities are introduced into the peritoneal cavity most patients quickly succumb to peritonitis. Why, then, did these patients recover so rapidly and show no grave signs of peritonitis? We can conceive of two answers. One is that the bacteria were not of the most intense virulence, and the second is that the patients were to a certain extent immune. In considering the first supposition, we know that in a large majority of the cases where there is a streptococcus endometritis following labor the patients recover, frequently without signs of transport of the micro-organism elsewhere. This is shown by the statistics of both Krönig and Williams. In these cases we can only say that the fight between the human organism and the bacteria ends favorably for the former. The test of virulence of the streptococcus is notoriously uncertain in animal inoculation, but we know by clinical experience that an infection which proves rapidly fatal in a woman suffering from carcinoma. Bright's disease, etc., would in a strong, healthy individual be comparatively harmless. It is impossible, therefore, to state positively that in these cases the bacteria were without virulence. It may be that by a long residence in the individual they had to a certain degree grown harmless. With regard to the second supposition, that the patients were to a certain extent immune, it may be said that by injecting small quantities of streptococci repeatedly in susceptible animals it is claimed that the animals finally become to a large degree immune to this micro-organism. This is probably due both to the toxins produced and to the increased number of leucocytes in the blood called forth by such injections. Both of the above conditions—*i.e.*, the diminution in virulence of the micro-organism, and the partial immunity—may have operated to protect the peritoneal cavities of the four women from the ravages of the streptococcus.

*Treatment.*—I will not attempt to say any more of the treatment than to give the indications for operation. As the exudate begins usually in the true pelvis, it should, when possible, be approached from the vagina, and the peritoneal cavity should not be invaded. Of course where the diagnosis is not certain an exploratory laparotomy is often necessary. Where it is impossible to reach the mass from the vagina the incision

should be into it where it lies in contact with the abdominal wall. Incision or puncture, with a free opening up of the mass with the fingers or by blunt dissection followed by free drainage, is always indicated. In Case 6 there was no pus, but by this method of treatment the mass quickly decreased in size and the patient was discharged greatly improved in two weeks. Excision of the tubes, ovaries, or uterus is rarely indicated. Where the uterine appendages are removed for a streptococcic parametritis, that more harm is done than good is self-evident.

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#### SOME CONSIDERATIONS ON GONORRHEA IN THE FEMALE.<sup>1</sup>

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BY

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It is not my intention to enter into a detailed consideration of this affection, but rather to present some facts which may serve to reawaken the professional mind to the serious character of the disease and the important part it plays in the disorders of the female sex.

Gonorrhea has been long and widely recognized as a disease among men. So common is it that it has come to be considered as a trifling matter, a *sine qua non* of virility. Sanger says fully eighty per cent of the German army have gonorrhea; and while these figures may be considerably less in civil life, it is unquestionably true that a large majority of men are victims of a specific urethritis at some period of their life.

With these facts before us it would not be surprising to find a correspondingly high prevalence of the disease among women. The contrary is, I think, however, the popular though erroneous opinion. It has been stated by a distinguished authority on the diseases of women that fully one-eighth of all gynecological cases are caused by gonorrhea. Taylor, studying the subject from a venereal standpoint, confirms these figures, but it is to Noeggerath that we owe our knowledge of the importance of gonorrhea in the female, he being the first to draw attention to the subject. He very truly says that it is not always an easy matter to state whether a

<sup>1</sup> Read before the Washington Obstetrical and Gynecological Society, January 6, 1899.



catarrhal inflammation of the female genital tract is due to gonorrhea or not. A simple microscopical examination of the secretion is not sufficient. The presence of the gonococcus proves that the disease is gonorrhea, but, on the other hand, its absence is not conclusive proof that its nature is non-gonorrheal and non-contagious. So common is it to find a leucorrheal discharge in women, usually of long standing, that the patients pay little or no attention to its existence, and the physician himself in many instances attributes it to other than a gonorrheal source. Even in endeavors to diagnose the real nature of the disease two or three examinations may be necessary before the characteristic diplococcus is discovered. The custom which many women have of taking douches, especially before paying or receiving a visit from their doctor, adds to the difficulty. Were it possible to take the necessary steps in every case to demonstrate the presence of the gonococcus, we would find in many instances the so-called leucorrheal discharges were of a specific character and correspondingly dangerous. In the *New York Medical Journal* of October 30, 1897, Van Schaick gives an interesting table of sixty-five cases examined for gonorrhea. The women were all married and belonged to the thoroughly respectable class. In seventeen cases, or twenty per cent, gonococci were found. In many of the cases two or three examinations were demanded. In all of the cases the women complained of whites. Few suffered pain, or symptoms which, as a rule, are characteristic of the acute disease, the reason being that in women gonorrhea rapidly becomes subacute or chronic.

The exciting cause of gonorrhea is the diplococcus of Neisser. This germ is found in the gonorrheal discharges, lodged within the pus cells, and this is its characteristic feature. More than thirty different organisms have been found in the genital tract, of which the gonococcus is the most generally present of the common suppurating organisms. As a rule, demonstrated by Krönig, pathogenic germs do not flourish in a healthy vagina.

Gonorrhea is usually communicated by impure coitus, but it may be conveyed indirectly by instruments, etc., as in the case of children. The inflammatory changes produced by the gonococcus are primarily a catarrh of the mucous membranes. It has been found, however, that the deeper-lying tissues are later on involved, which ultimately leads to a permanent alteration in structure; and, further, that the gonorrheal poison is

capable of producing, by absorption, change in organs remote from the original seat of trouble. Inflammation of the meninges, of the pericardium and the endocardium, and of the joints have been traced to the activities of the gonococcus of Neisser. Sanger says: "In many cases of gonorrhea the disease has not ceased with the disappearance of the gonococci, and the inflammatory processes consequent upon the entrance of the gonococci into the tissues may persist after the gonococci have disappeared, as a chronic inflammatory process that ultimately leads to the formation of scar tissue, and also as an apparently reoccurring diseased condition in the form of an acute exacerbation of the existing chronic inflammation." This is the residual or latent gonorrhea.

The conditions produced by the virulence of a gonorrheal inflammation are numerous and varied, and include alterations in the structure of the urethra. Urethral caruncle is not an infrequent result. The glands, especially the vulvo-vaginal glands, early become involved, and from the presence of pus within them serve as prolific sources of contagion—persistent whites, changes in the vagina resembling senile vaginitis, stricture of the internal os with consequent dysmenorrhea, changes in the tubes and ovaries.

The anatomical structure of the female genitalia is such as to favor the rapid extension of a virulent inflammation when once established, hence gonorrheal inflammations of the urethra, vagina, vulva, cervix, uterus, tubes, and peritoneum. In nearly all cases the urethra is early involved, with consequent pain on micturition. Next to the urethra the cervix is the most common seat of the gonococcus. It is estimated that ninety per cent of all cases of gonorrhea are of the cervix. The inflammation may, and in many instances, fortunately, does, stop at the internal os. A gonorrheal cervicitis or endocervicitis is usually of the subacute or chronic form, without local or general symptoms of general significance. On inspection the cervix will in many cases be found red or eroded. The discharge may vary little in appearance from the normal, healthy-looking mucus found in the normal cervix, yet microscopical examination will reveal the presence of the gonococci. The germs apparently lie deeply in the tissues and at the menstrual epoch come to the surface. This is the probable explanation of the frequency of contagion just before and after the menses. Contrary to the general opinion, the vagina is not, as a rule, the seat of a primary infection. The flat pave-

ment epithelium of the vulva and vagina offers a safe barrier to the entrance of the germs, except in the cases of young children. Gonorrheal pus has been kept in contact with the vaginal walls twelve hours without result. When a specific vaginitis is set up it is usually secondary to a cervicitis. It occurs in patches, as a rule, more frequently round the posterior fornix; is accompanied in early stages by a sense of heat and some elevation of temperature. The introduction of the speculum causes pain. Vulvitis is rarely observed, other than in girls and very young women; when occurring it is usually an extension of a pre-existing cervicitis or vaginitis. If the discharge be profuse a distressing pruritus follows, and condylomata may ultimately be formed. The gonorrheal pus, lurking in the glands of the vestibule, often lingers for months and serves as a potent cause of contagion. When once the gonococcus has obtained a footing in the cavity of the uterus extensive mischief results. The metritis and endometritis is of a virulent type, with profuse discharge. The great danger in a specific inflammation of the endometrium is not, however, so much in the direct injury to that structure as in its extension to the appendages. Involvement of the tubes and ovaries in gonorrhea is by all means the most serious complication of this disease. It not only finds in the Fallopian tube a favorable locality in which to run riot, causing great suffering to the unfortunate victim, but in the majority of cases leads to permanent ill health and sterility. Wertheim, in 1892, showed from a scientific point of view that the gonococcus was the cause of pyosalpinx. Proper culture methods demonstrate the presence of the germs in twenty per cent of all cases. In a series of 116 cases the gonococcus was found in 32, in 72 the pus was sterile, and in 12 various organisms were present. Since 1892 other investigators have confirmed his observations. It seems to be clear that the gonococcus, after a varying period of activity, loses its virulence and dies out.

The correct diagnosis of gonorrhea in women is a matter of great importance and no small difficulty. The presence of the gonococcus in a suspected discharge settles the question conclusively. The difficulty, however, does not lie in such cases. Unfortunately there are a great number of cases of gonorrhea in women in which the presence of the gonococcus cannot be demonstrated, and yet from these patients an undoubted gonorrhea is conveyed. How shall these apparent discrepancies be explained? There is never any difficulty in finding the gonococ-

cus in acute cases. In old chronic cases, however, examinations are negative. Wertheim, who has made this matter one of special study, contends that only young gonococci are stained by aniline colors, the old cultures not imbibing the staining fluid. He says: "The old gonococci lose their typical forms and thus changed are no longer recognizable as gonococci. They become granular spheres, variable in size and indefinite in outline." Examinations of the same subject conducted from time to time with negative results have, when made near the menstrual epoch, revealed the presence of gonococcus. To arrive at a positive diagnosis, while a bacteriological examination is highly desirable, it is nevertheless not always attainable. In such instances a careful study of the case, and, when available, the examination of the husband—if such an individual exists—will suffice to furnish the necessary data on which to base a diagnosis. Ophthalmia neonatorum, small ulcers, condylomata, vulvitis, urethritis, affections of the joints, and suppurating tubes are all links in the chain of evidence.

In conclusion it may be said there are few diseases common to both men and women which are capable of causing more extensive injury than gonorrhea. A disease which is the direct cause of years of suffering and invalidism to hundreds of women, which practically unsexes them by sterility, or inflicts upon their offspring the loss of sight, is one which is deserving the most serious consideration at the hands of the medical profession. Its character should not be overlooked. Its presence should be recognized, and every means adopted to prevent its spread and to minimize its baneful effects.

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#### A CASE OF SYMPHYSEOTOMY.<sup>1</sup>

BY

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EMMA G., admitted to Columbia Hospital; age 21; primipara. Labor began November 13. Membranes ruptured spontaneously at 9:20 P.M.; pains strong, regular, but ineffec-

<sup>1</sup> Read before the Medical Society of Washington, D. C., January 18, 1899.



tual. A vaginal examination at 11 A.M., November 14, revealed a contracted anterior-posterior diameter, with a relatively large head presenting at the superior strait with occiput to the left. The cervix was soft, yielding, and dilated to about two inches in diameter. Pelvic measurements were as follows: Between anterior superior spines, 21 centimetres; between crests, 22 centimetres; external conjugate, 15 centimetres; left oblique, 17 centimetres; right oblique, 18 centimetres; circumference of pelvis, 68 centimetres; true conjugate, 8 centimetres (estimated).

The case was deemed a suitable one for symphyseotomy, but the member of the staff consulting was of the opinion that the high forceps operation might suffice. Repeated and ineffectual attempts to engage the head in the superior strait by means of the axis-traction forceps, and the fact that the patient had been in labor nearly twenty-four hours, convinced me that the safety of mother and child demanded operative interference.

An incision was made extending from two inches above to one-half inch below the superior margin of the symphysis. The tissues were carefully separated by the finger to the extent of an inch on either side of the joint anteriorly and posteriorly, a plate inserted under the posterior surface, a metallic catheter placed in the urethra and held to one side by an assistant, and the anterior surface of the joint thoroughly exposed by a retractor in the lower angle of the wound. The joint was severed from before backward by means of an ordinary scalpel and permitted a separation of the joint of about five centimetres (two inches). The axis-traction forceps was applied, careful and intermittent traction being made in order to gradually dilate the cervix. The head was finally brought down to the inferior strait, the axis-traction forceps removed, and the delivery of the live child completed with the short forceps.

Careful examination showed a bilateral laceration of the cervix, the vagina and the urethra were uninjured, and the perineum torn to the first degree. There was considerable venous oozing at the inferior margin of the symphysis, which was readily controlled by packing with iodoform gauze. The pubic bones were easily approximated and kept in apposition by strips of adhesive plaster encircling the pelvis and supplemented with a well-fitting binder. The muscles and fascia were sutured with catgut, and skin incision closed with silk-worm gut. The gauze packing was removed on the second day

and dressing and bandages renewed. Sutures removed on the tenth day; primary union throughout. The advantage of the short incision as advised by Morisani was well demonstrated in this case, as the subsequent history showed patient to be suffering with gonorrhea. If the so-called open method of exposing the entire extent of the joint by an incision of several inches extending to or beyond the clitoris had been done, the infection of the wound could hardly have been averted.

An examination at the end of the third week showed that the joint had united. Patient was permitted to sit up and walk about the ward during the sixth week, and did not experience the least discomfort or inconvenience.

The measurements of the child's head taken twenty-four hours after birth showed a biparietal diameter of 10 centimetres, occipito-mental 14 centimetres, occipito-frontal 13 centimetres. The relative measurements of the child's head and mother's pelvis prove conclusively that delivery could not have been effected with forceps or by version without endangering the life of the child and probable serious injury to the mother.

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## INTESTINAL OBSTRUCTION FROM ASCARIDES.

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BY

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FORTUNATELY obstruction from ascarides is very rare. When such a condition does exist early surgical aid is the only relief for the patient. When the mass is large enough to cause obstruction anthelmintics and purgatives can do little good. Unlike obstruction from fecal matter, there can be no possibility of liquefaction and expulsion, but cathartics, by increasing intestinal secretions, possibly increase the trouble by mingling contents of the bowel with the mass.

One Saturday afternoon in last May a gentleman came to my office and asked what to give his boy (5 years old) to act on his bowels. He said that he had given him a dose of

calomel and santonin the day before, but it had acted only once and he had passed two worms. I directed him to give an enema. He did so, and during Saturday thirty-six ascarides were expelled, several crawling from the anus.

I saw the boy Sunday afternoon, the third day after taking the anthelmintic. His temperature was  $99\frac{1}{2}^{\circ}$  F., pulse 110 and regular in force and rhythm. He was suffering at times with severe pain in the umbilical region. Upon examination I found a mass extending from the cecum across above the umbilicus down into the left inguinal region. The mass was doughy in character and seemed to be about one and a half inches in diameter. There was no vomiting, and there was not complete obstruction, as castor oil taken by the mouth had appeared in the evacuations. I could feel nothing per rectum except the tumor above. I explained to them that the trouble was a serious one, and, unless relief came that day from enemata, I would operate. I thought perhaps the tumor might be the colon, and directed them to give several enemata during the day. Nothing was accomplished except that several ascarides crawled from the anus that day.

I saw him again the next day. There was no change in the tumor, but his pulse was 120 and temperature  $100^{\circ}$ . No vomiting, but the pain was more severe. I advised an operation, but it was refused. His condition grew worse, and on Wednesday, the sixth day, they asked me to operate. His temperature was  $100^{\circ}$ , pulse 140. I informed the family that they had waited too long, but I would give the boy his only chance. At noon Wednesday I opened the abdomen over the region of the appendix. As the abdomen was so distended, I could feel the tumor only at the appendix. I found about two feet of the ileum inflamed and edematous, but there was no general peritonitis. I opened the gut and delivered sixty-six ascarides, making in all passed one hundred and two. The gut was, I feared, damaged beyond repair, but I hoped that the removal of the irritation would permit it to recover from the inflammation. The boy's condition would not allow time for resection, and I was afraid to use Murphy's button, thinking there might be more ascarides above and that they would obstruct the opening in the button. I closed the opening in the gut carefully, and, after flushing out the cavity, the abdomen was closed without drainage.

There was considerable shock, but he rallied well, and

seemed much improved the day following the operation. His pulse was 120, temperature  $99\frac{1}{2}^{\circ}$ . This condition was maintained for twenty-four hours, when he grew worse, and died on the third day following the operation. I was out of town when he died, and do not know what caused the fatal ending.

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## TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

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*Meeting of March 14, 1899.*

*The Vice-President, T. S. CULLEN, M.D., in the Chair.*

DR. EDWARD P. DAVIS, of Philadelphia, read a paper on

### THE TREATMENT OF LABOR IN ABNORMAL Pelves.<sup>1</sup>

DR. KELLY.—It is a pleasure to congratulate Dr. Davis on his admirable work, and particularly pleasant to note that it falls in line with the excellent work that is being done by Dr. Williams in the Hopkins Hospital, and I think Dr. Neale also bears out these statements as to the frequency with which deformed pelves are met with in this country. It is interesting to compare Dr. Davis' statement with that of Dewees in 1889, and from which the idea gained great prevalence in Europe that deformed pelves were not found in this country. The opinion, I think, must have been formed from a study of the aborigines.

The work done by Dr. Davis, particularly in the line of estimating the relation between the container and the contained, the birth canal and the body to pass through it, is refreshing to obstetricians. I well remember in my earlier days in Philadelphia, when I had the pleasure of doing several successful Cesarean sections, the first successful ones for fifty-one years, a number of friends were inflamed with the ardor to do the same thing. I was called to see a woman with contracted pelvis upon whom it was proposed to do a Cesarean section. I found the head well down in the canal, and Dr. Parish, who was also invited to be present, concurred in my opinion that the patient might get through without an operation. A little later I received a courteous note from the attending physician speaking in endearing terms of the little woman, and saying that he proposed to take no chances with her and hence would operate. The labor came on rapidly before section could be

<sup>1</sup> See original article, p. 721



performed, and, in fact, he just got there in time to put on forceps.

This, however, is not my work, and the subject is out of my line. I arose with the intention merely of calling upon Dr. Neale to speak.

DR. NEALE.—I believe, certainly, that I speak the sentiment of all in saying we thoroughly appreciate the most excellent guidance conveyed in this paper, and it is a teaching I sincerely trust will be adopted more generally throughout this country. I refer especially to the preliminary examination of all pregnant women by pelvimetry. It is a custom that has hitherto been honored more in the breach than in the observance, and I think this should cease, for the facts show the importance of such examinations.

I was very much pleased to hear Dr. Davis say that we need not place so much reliance upon fractions of an inch in these measurements, but that it is more important to consider whether this particular pelvis is capable of permitting the passage of the child, for in that, I think, lies the keynote of the thing. We cannot always foretell the character of the labor or of the procedures that will be indicated in such pelves, for, as a matter of fact, pelves of the same size may call for quite different procedures. It is not long since in this very Society I related the case of a woman with contracted pelvis in which the case was terminated by craniotomy on a dead head that had been treated by forceps; and another case of the same pelvic measurements where the woman gave birth to a child spontaneously before we could sterilize our instruments, as we contemplated doing a symphyseotomy. Now, it seems to me this point can be made clear by previous examinations, and I am glad to hear that in Dr. Davis' work such examinations are made even under anesthesia. If this were more generally appreciated less lives would be lost, especially on the part of the child, and less dangerous operations would have to be performed upon the mother.

As regards the major operative procedures, I was also particularly pleased at Dr. Davis' statement that in cases of deformed pelves he had performed six Cesarean sections to one symphyseotomy. My own work in this line has been extremely limited, one of each, and I am not permitted to draw conclusions therefrom, but if I might do so I should indorse the ones he has given. In the case I handled myself, after having opened the symphysis to the full amount, nine centimetres, we found that delivery could only be accomplished after a most difficult forceps operation, during which the child was lost. I fully believe that if the case had been subjected at once to a Cesarean section the child would have been saved.

Now, of course it is wise to determine what ought to be done in these cases prior to labor, and perhaps by palpation, if necessary under anesthesia, occasionally as good results can be reached as by pelvimetry; although all methods should be resorted to, for, no matter what means we use, there may be some

difficulties. I might cite a case where our first impression on seeing the woman was that she would probably require a Cesarean section. In order, however, to have my views either disproved or substantiated, I suggested consultation with Dr. Williams. The patient was taken to the Hopkins, examined by pelvimetry, and then under anesthesia by palpation, and the opinion as to the advisability of Cesarean section was not concurred in, the possibility of delivery through the pelvis seeming so evident that the patient was allowed to go to full term with the hope that delivery could be accomplished with forceps. After a most difficult operation, which produced a considerable lesion of the mother, a dead child was delivered. Now, notwithstanding the excellent rules laid down by Dr. Davis, it seems to me that the results in this particular case were not what they might have been had Cesarean section been done at first.

It is interesting to recall the statistics of Dr. Harris, who says that in the early instances the statistics of Cesarean section when performed by the horns of cattle were better than those of the surgeon, which simply shows that when the operation is attempted with the patient in good condition a satisfactory result should be readily obtainable, and these early examinations are our best means of avoiding unsatisfactory results.

DR. DOBBIN.—I have been much interested in what Dr. Davis has said, particularly on account of the fact that it is exactly in accord with the work Dr. Williams and I performed some two years ago. The percentage that Dr. Davis gave is higher than ours, except that referring to operations. Dr. Williams was impressed with the belief that contracted pelves were not so rare in this country, and started out with the idea of proving that there were more than any one had supposed, and that they would be found if careful measurements were made. The only suggestions we could find were those of Dr. Reynolds, of Boston, who gave a percentage of 7 and a fraction, but he had not measured all cases, which accounts probably for our differing statistics. Our cases were reported in two groups; in the first hundred 15 pelves presented more or less severe grades of contraction; the second group I reported at the medical and surgical faculty, based on 350 cases, showed 11 per cent of contractions. We were surprised and somewhat disappointed when it was not higher.

I would like to ask Dr. Davis what his limits of pelvic contractions were, and if all the cases under consideration were measured, and if he had control of all the measurements.

DR. DAVIS.—I have enjoyed the discussion of the paper exceedingly, and that is the reward one gets for writing a paper—the drawing out of one's friends. In regard to what Dr. Kelly said of the dogmatic determination to do a Cesarean section, I think there may be still in Philadelphia some of those men. I had a colleague who was quite sure he had a case for Cesarean section. He had a foxy resident physician, however, whom he had offended, and on the day before the time set for the

section he gave the patient a large dose of castor oil and the patient delivered spontaneously. The moral is that all hospital chiefs should be very civil to their resident physician. The physician invited a number of his friends from out of town to see a Cesarean section, and here again the spontaneous delivery occurred before the friends arrived.

I am glad Dr. Neale is with me on the question of proportion and disproportion. I want to call attention to one or two features which help us out. In hospital cases we seldom see the father of the child, but in private cases we can. I had a patient some years ago with the history that in first confinement she had lost a large, fine male child through effort at delivery with forceps. The child's head was crushed and she was torn. I set to work to discover the reasons why she could not have had a child born the first time. I found that the father of the child was an extremely well-developed man, who had an enormously large head that contained an active and valuable brain. The mother was not well nourished. Everything pointed to a large head on the part of the child. The mother was watched carefully, and at the proper time labor was induced. She is an extremely nervous woman, as a result of some early shock. The result of this treatment was the delivery of a fine child without difficulty. A week ago I delivered her again by induced labor of a fine female child. The induced labor was done not only from the pelvic proportions, but from the size of the father also, for it was evident that a large sized head was to be expected. We should have reference to the well-known fact that the size and figure of the father ought to influence the size of the fetus.

As to the comparative advantages of symphyseotomy or Cesarean section, I can best sum up our experience by saying that symphyseotomy is a useful but disagreeable operation. The last one I cited was the worst I ever did. It was a rachitic negro, who has resumed her occupation of dancing on the stage. She repeatedly danced for the nurses during her convalescence.

I have one point to make regarding Dr. Neale's remarks upon the uncertainty of results in these cases. Some time ago I was asked to see a wife who was in labor, having two physicians in attendance, and who declined to be taken to the hospital. I declined to do any major operation because of impossible asepsis. The child and mother had been bruised by application of the forceps and she was probably infected. I told them, as they were members of the Roman church, to prepare for baptizing the child, as it would be born dead. I put her to the edge of the bed and applied forceps and delivered a living child. When she came in labor again an induced labor was tried and a dead child delivered. The point I wish to make is this: We prepare cases of contracted pelvis, in which we fear necessity for radical operations, for Cesarean section. We do not necessarily say to the patient, of course, that she is expected to have a Cesarean section done, but I have gone so

far as to sterilize instruments and dressings and hold myself in readiness to perform the operation. The choice of operation is made upon the presence or absence of engagement of the head, and when it partially engages I have refused the section and put them in proper position and delivered by forceps. I think we should study this point of engagement of the head. I am perfectly aware that this is a hard thing to determine, and I have prepared two cases within two years for Cesarean section and then delivered by forceps, because in a few hours of fairly good labor pains they had brought the head into the pelvis, and, they being young girls with elastic pelves, conditions were favorable.

I recall with great pleasure the observations of Dr. Williams and Dr. Dobbin on contracted pelves. My friend Dr. Reynolds only measured those cases in which difficulty was experienced at delivery.

The point I made in my paper was that 466 women measured by myself or my first assistant—a man who is quite competent—of these 466 women of all sorts, 153 had abnormal pelves. My percentage of operations is not as large as Dr. Dobbin expected, because eight per cent of abnormal pelves, if placed under good care, take care of themselves. The limits were these: a pelvic contraction was thought to be present when a diminution in any diameter of two centimetres existed. For example, a pelvis normal in every diameter except the antero-posterior, which showed a contraction of two centimetres, was considered to be a flat pelvis; if contracted two centimetres in either of the two other diameters, the oblique or transverse, it was thought to be an abnormal pelvis.

I can only say further, for the whole matter of treatment of labor in abnormal pelves, that our attitude should be that of a surgical student, for you cannot dogmatize in any two cases. If a patient is known to have an abnormality she should be regarded as a patient appropriately the subject for surgical care, just as much as a patient with fibroid tumor. I believe there are women with fibroid tumors who should not necessarily be operated upon, but any woman having a fibroid is a subject that may need an operation. Let us practising physicians surround a woman with contracted pelvis with very careful study, make no definite choice of method of treatment. She may come through alone, she may require use of forceps, Cesarean section, symphyseotomy, etc., but let us give her the benefit of study that we give other surgical cases.

DR. CULLEN.—I am sure I voice the sense of the meeting in conveying to Dr. Davis our most hearty thanks for his excellent paper.

DR. DOBBIN.—Dr. Williams, having been called away, asked me to show for him this

#### SPONDYLOLITHIC PELVIS.

DR. DAVIS.—At the Philadelphia Hospital some six or eight years ago a patient came into labor, and in placing a hand on



the uterus to press out the placenta it was evident that she had a spondylolithic pelvis. I was convinced that it was such a case. The patient recovered, and it is the only instance I have ever known of. The child was small, and delivery was accomplished by forceps without much difficulty, but the child afterward perished by inanition.

I have never made a version after symphyseotomy, and shall never do so, because I think it is a disadvantageous proceeding. The danger of tear is much greater than if the head descends first. In most of the cases I have seen the head rotates behind, and I have delivered it by drawing the forehead forward and the occiput over the floor rather than against the anterior walls. Dr. Harris' study of figures on this subject bears out my idea.

It would be interesting if Dr. Dobbin would tell us how this woman became infected. The laceration of the anterior wall is a minor injury. She had been in the hospital, had not been examined, and had aseptic care.

DR. NEALE.—It was my pleasure to be closely associated with Dr. Rosenbauer in 1881 and 1882 in the clinic at Dresden, and I have rarely seen a more enthusiastic worker than he, and his time was closely taken up by long study of these pelves. He was travelling about at the time with a dry-goods box full of bones that he took great delight in showing his friends, and he would form a suspicion of a case by noticing the peculiar gait of a woman walking on the street, and he would follow up such cases and learn the history, etc. He would have the woman in the clinic, walk about with a feather stuck in her hair, making a tracing on a piece of smoked paper above, thus photographing her walk. This case of Dr. Williams, though, is the only one I have had the opportunity of studying on the living subject. It was evident to my mind that a living child could not be delivered from that pelvis. Dr. Williams held to the same opinion. It seems to me, notwithstanding the persistent refusal of the patient to submit to this operation, that, inasmuch as I found by the labor that the head did not engage, the Cesarean section should have been performed. It seems to me that was the time to tell the woman you could not expect a safe delivery through the passage. As Dr. Davis outlined in his paper, where the head does not engage you have the clearest indication for the operation.

The point of liability of infection in these cases is an extremely interesting one, for it was from that complication that the symphyseotomy case I operated upon last was almost lost. In my case I want to say, though, that pus was found in the urine and she may have become infected from that channel. Absolute cleanliness is extremely difficult because of the liability of organisms to exist about the vaginal parts.

DR. DOBBIN.—The first question that comes up is whether or not we should have done a Cesarean section. Symphyseotomy at the time was thought by Dr. Russell and myself to be the best method, but before we got far along with the opera-

tion we decidedly changed our opinion. There is no doubt in my mind that the cause of the patient's death was bad judgment. We thought at the time that symphyseotomy offered a chance of delivering a living child, and it was not found to be bad procedure until it was too late to turn back. As to the infection, that is a question of interest. I do not think the patient was infected by the operation. She had been in the hospital, was not examined by any one except Dr. Russell and myself, and she did well for the first day or so. She was considerably shocked, and I think developed from this an intestinal apathy, for we had difficulty to get the bowels to move, and I once thought of opening the pelvic colon to relieve the distension. I have never before seen such great distension, and in order to get a movement we went through considerable manipulation—for instance, we put her upon the Trendelenburg table and gave a high enema, which had to be repeated several times before we got movement. When we did succeed, however, it was very decided and feces came in contact with the womb. Of course it is only surmise that she was infected in that way. The operation was performed with strict aseptic technique.

DR. DAVIS.—I would like to suggest the possible infection by bacilli coli communis, which may give just such symptoms as those Dr. Dobbin has described. Do you recollect the condition of the intestinal walls?

DR. DOBBIN.—Owing to delays that could not be prevented, autopsy was not performed until the fourth or fifth day after death, and we could not say what the condition had been.

DR. B. B. BKOWNE exhibited a

#### SARCOMA OF THE VAGINA IN A CHILD THREE YEARS OLD.

DR. KELLY.—I have been very much interested in hearing this report of an exceedingly rare case. We all know how nomadic our patients sometimes are. This case happened to come to my clinic, and I found a somewhat different, a more advanced condition than Dr. Browne describes. These cases are among the gynecological rarities. I very well remember one of my earliest experiences was with one of these grape-like sarcomatous masses projecting down from the posterior lip of the cervix. I did not know what it was at the time and amputated the lip of the cervix, but the growth returned and the patient finally died of the disease. The growth was grape-like, made up of delicate vesicles, and was of a sarcomatous nature.

We have to consider two different classes or species of the sarcoma in these cases. We have in the first place a class not found elsewhere. Those that are found in connection with the uterus are of vesicular nature and similar to, but not to be confounded with, those observed in children. The first class of cases, for example, begin as vesicular sarcoma by forming these grape-like masses. They sometimes contain a cartilaginous tissue never found in children. I think there are about thirty cases on record of sarcoma of this kind. In the second class there are, perhaps, only fourteen or fifteen on

record as occurring in children. They begin as more or less irregular, flat, sessile tumors, in the anterior wall of the vagina, and as they advance or grow larger they take the form of vesicular tumors. They generally occur in the very young, though one case has been reported in a girl of 15. In one case the patient was born with the tumor, and it seems to have some relation to the Cohnheim theory, though it would be difficult to say that it proves it. In another case the child was presumably born with it, though it existed five years before it took on any signs of malignancy. It is peculiar in the child, too, in this respect, that it has been found on the anterior wall in 9 out of 14 cases, with 3 on the lateral walls and 2 on the posterior wall. It is further extraordinary in this, that the disease does not spread by metastasis, as the term is generally used, but is regional, the metastasis being local and only a short distance from the area of infection. In one other respect they are somewhat peculiar, that is, that they contain striped muscle fibres. This tissue is not found in every case, but occurs with great frequency.

As to the clinical symptoms these cases mostly turn out just as described by Dr. Browne. In this case hundreds of little masses have been removed, only to return again and show evident malignant nature. They choke the vagina and pelvis, may subsequently invade the uterus, and the patient is apt to die from interference with the urinary function; for as infection very readily takes place in these cases, the child may die of purulent peritonitis, pyometra, or nephritis. The question as to what to do with these cases is a very important one. If seen early enough the operation ought to be an exceedingly radical one. I believe only two cases that have been operated upon have lived any length of time afterward. The practical point is early removal of all vaginal tumors, careful microscopical examination; and if we find this disease and our first operation has not been a very radical one, we should do a second operation and let that be a decidedly radical one.

DR. CULLEN.—I would like to ask why it would not be possible in this case, with the child in good condition, to remove the whole growth, divert the rectum, take out the entire vagina from below, and then from above complete the operation.

DR. KELLY.—That is exactly what was done in one of the only two successful cases.

DR. BROWNE.—I would call attention to the great distensibility of the vagina in young children. In this case it was very much distended. The manner in which this growth was expelled was very similar to the way in which the placenta is expelled from the uterus.

DR. W. W. RUSSELL, *Secretary*.

## TRANSACTIONS OF THE ST. LOUIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of February 16, 1899.*

*The President, W. B. DORSETT, M.D., in the Chair.*

DR. FRANK GLASGOW presented a specimen of

### SARCOMA OF THE OVARY.

A young woman came three weeks ago complaining of pain and a swelling in the abdomen dating from the last part of October. Before that she had felt perfectly well. There was an irregular mass, like a soft myoma, extending up to the umbilicus, most prominent on the right side, which was exquisitely sensitive. I concluded that it was a soft myomatous mass developed from the ovary, because I could outline the uterus in front. This seemed to be normal in size and was a little increased in depth. She had been having fever, sometimes as high as 102.5° F. This occurred every day, it being a little higher in the evenings. She was not emaciated, but a little pale; apparently her health was not very much interfered with. She was 24 years old, strong, and well built. She had been a clerk in a large lumber concern, and she continued to work, I believe, up to a month ago. The tumor, when the abdomen was opened, had the appearance of a pregnant uterus, was of dark red hue, smooth; did not look like an ovarian cyst at all. It was irregular in shape and was not at all movable. There were no adhesions. In trying to lift it out of the abdomen my hand went into the tumor—into a mass of blood and broken-down débris. I had now no doubt it was a sarcoma. I removed it and found it was from the ovary. I tied off the broad ligament and closed up the peritoneum and abdomen by tier suture. She went along without any inconvenience or disturbance from the operation. The fever continued for six days, gradually getting less and less. She never had any sensitiveness of the abdomen nor the slightest reaction. I let her go home three weeks after the operation. I did not remove the right ovary, as it was healthy. I hardened the specimen in alcohol and formol. The sections which I have made show that the tumor is sarcomatous. There was no involvement of the uterus.

The tumor is of special interest, inasmuch as it shows a change in the ovary, which is as large as two fists and looks like fibrous tissue, not only to the naked eye but under the microscope; there is fibrous tissue, with epithelial tissue scat-



tered through it. We notice that this large ovary is intimately connected with the mass of sarcoma. Whether we have a fibroma gradually changed into a sarcoma I cannot say until I have made more careful study. This fibroma is not joined by a pedicle to the ovary, but is a part of the ovary, and yet the mass of the ovary is distinct. The prognosis is bad. In my opinion there is no danger of its returning *in loco*, but it was attached to the anterior abdominal wall and I ruptured it in removing it, so of course the cells are scattered through the abdomen; they could not all be wiped out, and in this way I expect a recurrence.

DR. F. J. LUTZ.—Fibroids of the ovary are comparatively rare. We should not be surprised to find almost any kind of tissue in an ovarian tumor or resulting from an ovarian tumor, because the ovary itself is the foundation of the development of all kinds of structures. You have there the possibility of the development of any tissue.

These tumors as a rule present a very unfavorable prognosis, nevertheless I have had a case of spindle-celled sarcoma of the ovary which did not return. The patient was a woman about 28 years of age, the mother of two children. It is twelve years since I removed that tumor, and she has since given birth to three children; she herself has remained perfectly healthy. This is, however, only a rare exception to a general rule.

DR. NEVILLE.—The doctor spoke of fibromata of the ovary as rare. The stroma of the ovary is fibrous tissue.

DR. LUTZ.—If you stop to think of the cases of fibroid of the ovary, you will find that in proportion to other degenerative conditions, such as cystic, carcinomatous, and sarcomatous changes, they are rare.

DR. DORSETT.—Do you not think the absence of glandular enlargement is a favorable factor in the prognosis?

DR. LUTZ.—Yes: but, as a matter of fact, ovarian tumors, even carcinomata, are relatively rarely attended with glandular involvement. When you have a distinct capsule over the carcinomatous or sarcomatous growth you comparatively rarely have glandular involvement, and when you have glandular involvement the case is inoperable.

DR. FRANK GLASGOW.—There is one thing about this specimen that speaks for itself: the sarcomatous mass is separated from the pedicle by the whole of the fibroid ovary.

#### CANCEROUS UTERUS REMOVED BY VAGINAL HYSTERECTOMY.

DR. W. B. DORSETT.—The patient, 52 years of age, came to me about three months ago suffering with pain in the uterus and a slight discharge simply tinged. She had no history of hemorrhage. She ceased menstruating at 45 years of age and enjoyed good health until about two and a half years ago, when she noticed that there was a little trickling now and then, a stain, a leucorrhea. She was a fleshy woman, and there was nothing to be ascertained so far as an examination was concerned; nothing could be felt out of the way. When

the case came to me I tried to make up my mind as to what was the best thing to do, as well as to make a diagnosis. From the experience gained in similar cases I suspected cancer, and accordingly I made a vaginal hysterectomy. The patient survived the operation and went home in three weeks, to all intents and purposes well. She was out of bed in two weeks. She has not had an ache or pain since. The specimen shows the growth coming down to the internal os and involving the posterior wall of the uterus.

This second specimen is

#### A MYOMA

from a trained nurse, an Englishwoman 38 years old. Five years ago she began to have hemorrhages from the uterus, and she went to a physician in Kansas City and was treated by electricity for myoma. She claims that the tumor was materially decreased in size, but, the pain and hemorrhage continuing, she concluded to have the uterus removed. She came here without consulting a physician as to the propriety of the operation, simply to have the uterus removed. In making bimanual examination the tumor did not seem to be very large, but I was particularly impressed with the prominence of the tumor in the anterior wall of the uterus. My experience with these myomata is that they grow most frequently in the posterior wall. This pushed forward the bladder so that there was vesical irritation and tenesmus. I removed the tumor by abdominal hysterectomy. The greatest obstruction was the mass that was directly in front between the cervix and bladder. After removing the uterus I found this submucous tumor, which was in all probability the cause of the hemorrhage. The tumor shows not only the submucous but also the subperitoneal and intramural varieties of myomatous growth.

The patient from whom the second specimen was removed sat up four weeks after the operation. This patient had an idiosyncrasy against morphine; and, while it is not well to administer morphine after an operation of this character, the pain was so intense that I gave her an eighth of a grain, and as a consequence she vomited for four days. I was called three or four times to see the patient, and the question came to my mind whether or not there was a kink or adhesion or something causing obstruction of the bowel. It is a serious question to make a diagnosis between an obstruction and an idiosyncrasy against a drug, and I admit that I should have inquired into this matter before giving the morphine. She told me afterward that she could not take morphine and never could, that it always made her vomit for two or three days.

There is something peculiar in the vomiting of obstruction. The material thrown up seems to come up easily, by a sort of regurgitation rather than a vomiting. I believe this gives some insight into the true condition of affairs. Dr. Ameiss will no doubt remember a patient that we operated on two

years ago for ovarian cyst. It was a simple operation, but there was an adhesion of the pedicle, to a coil of the bowel probably. The emesis in that case was peculiar; fluid came up without effort. I remember another case that I lost, of vaginal hysterectomy, in which the patient rallied from the operation; she had little pain, and was doing well for two days; the clamps had been removed, when she began to vomit, and vomited until she died. A postmortem showed two coils of the small intestine in the cul de-sac of Douglas, adherent to the raw surface.

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## TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

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*Meeting of January 6, 1899.*

*The President, THOMAS C. SMITH, M.D., in the Chair.*

DR. STONE showed

### A FIBROID TUMOR

removed from a black woman. It was very nodular, and a myomectomy was impossible owing to the large number and size of the tumors and the small size of the uterus. Dr. Stone showed the specimen to draw attention to two cases he had lost from embolism, one on the twelfth day after operation and one on the seventh. He thought too much stump was being left in these cases, which, the blood supply being cut off, might slough and thus cause embolism. He had since then been taking out nearly all the cervix, but not all, which he thinks is better.

Dr. Stone also showed a tumor which had the appearance of an ordinary ovarian cyst, but which was found by the microscope to be an

### ADENOCARCINOMA.

The patient lost much blood and died shortly after leaving the table.

DR. E. E. BALLOCH said he had seen a patient die on the fourteenth day after operation, of embolism. Noble had reported six cases. It would be interesting to know just how this embolism is produced. He asked if Dr. Stone's case was colored—his case was—and if she had any heart trouble.

DR. STONE answered that she was white and that her heart was normal.

DR. J. T. JOHNSON said he was a guest at Dr. Stone's second operation. The bleeding did not seem to be severe to bystanders. He thought if some of these points of oozing had been left, and the parts simply packed and plenty of salt solu-

tion used, so that the patient could have been gotten off the table sooner, she might have been saved. At all events he had taken the lesson to himself. In the case he had reported at the last meeting, of the patient who had carried her tumor for twenty years, an attempt having been made at one time to remove it, there were a large number of adhesions and consequently profuse bleeding. If he had stopped to tie all these points he would have lost his patient. In some cases we try to do too much.

The paper of the evening was read by DR. E. E. MORSE on  
SOME CONSIDERATIONS OF GONORRHEA IN WOMEN.<sup>1</sup>

DR. G. WYTHE COOK said that in the consideration of gonorrhea in women there were three chief points of interest: first, the effect of the disease upon the woman herself; second, the effect upon her powers of procreation; and third, the danger to her offspring, should she become pregnant. The woman was in danger of endometritis, salpingitis, pyosalpinx, ovarian abscess, peritonitis, and all the troubles incident to this condition. As to the effect upon her powers of procreation, it was to be apprehended that she would become barren by reason of occlusion of the tubes or such permanent injury to their lining membrane that the ovum failed to reach the uterus. The child was liable to gonorrheal ophthalmia. With these disastrous results staring us in the face, it was to be regretted that Dr. Morse omitted consideration of the treatment from his paper. Certainly it should be pursued with great activity and persistence.

DR. I. S. STONE said the paper brought up many points of interest, especially regarding Noeggerath's theory of latent gonorrhea in the male. If it does remain latent and lights up after a long interval, it is unlike the behavior of the germ elsewhere or other germs. A pus tube is dangerous to handle according to whether it is acute or not, being more so during its first week, less so the second, and so on. The same statement is borne out at the Johns Hopkins Hospital. It is hard to find the germ in old pus cases. The operator is safe in chronic cases: if the germ is present it is not active. Speaking of leucorrhea, he said there were few cases so difficult to cure as old leucorrhea; it is very much like an old nasal catarrh. It is impossible to cure these cases without first building them up. In both diseases these patients were condemned to a life of suffering until surgery came to their aid.

DR. H. L. E. JOHNSON said, so far as the perpetuation of gonorrhea is concerned, recent research has shown that it may exist for a long time at points distant from the points of infection, as the heart, pleura, etc.; and men who have had this disease and thought themselves well have, after a debauch or sexual excess, the characteristic discharge, which is laden with germs. The inflammation of the urethra is the same as in the male, but it does not last so long and there is not so much pain and less

<sup>1</sup> See original article, p. 794.



liability to stricture. The drainage is better and the canal more elastic than in the male.

DR. JOSEPH TABER JOHNSON said latent gonorrhea does exist and is liable to become acute under proper conditions. Dudley's recent book says a very large number of women are infected by their husbands after marriage. The statement is made that the gonococci lie hidden in some crypt. Dr. Johnson thought gonorrhea to be the greatest evil of the day. Women by the thousand have become infected. Of men applying at the German clinics, eighty per cent are said to be infected. Dr. Johnson thought this country not very different, and a large number of cases of cystitis, endometritis, pus tubes, and pelvic abscesses do develop from latent gonorrhea.

DR. I. S. STONE said he was not persuaded that gonorrhea was so dangerous. He had a case in which the tube leaked pus, which was just as infectious as when given her. The tube was washed out and returned to the abdomen, the uterus and vagina being made sterile, and the woman got well. The man came to him afterward and acknowledged that he infected her. Howard Kelly said, at Memphis, that he no longer feared gonorrheal infection. Dr. Stone had come to the same conclusion. Pus gets sterile, not in one year, but in less time. He defies any man to find the gonococcus in the heart and pleura at a time distant from infection. When trouble comes a long time after, some other germ may be the cause, it having been a mixed infection. The streptococcus is usually in company, and why should the gonococcus be always alone?

DR. H. L. E. JOHNSON said the gonococcus is hard to cultivate, and that is the reason it may not always be found. Gonorrheal rheumatism is one of its late results. The germ has been found in the pleura after some months. A mixed infection may have been present.

DR. JOSEPH TABER JOHNSON said if the effect of gonorrhea is to produce so much disease in women, we need no other argument as to its danger. It may not do so much mischief in the peritoneum after a long time, but it is responsible for a vast majority of pus tubes and pelvic abscesses. If, as Kelly stated, as a result of research, a great number of women are infected by young husbands who thought themselves free from disease, it behooves these young men to be very careful or they will be sure to infect their brides.

*Meeting of February 3, 1899.*

*The President, THOMAS C. SMITH, M.D., in the Chair.*

DR. J. R. BROMWELL showed a

#### BLIGHTED OVUM.

DR. SMITH said the question had a legal value. If a careless practitioner had attended such a patient and she had been a

widow, grave complications might have arisen. He thought the evidence strong that it was a blighted ovum.

DR. H. L. E. JOHNSON said there were two forms of blight: where the child is blighted and discontinues to grow, the decidua continuing, and the other where the child continues to grow and the decidua does not. He saw a case developed in a uterus complicated by fibroids in which the fetus developed and the membranes did not. In another case the growth of the fetus was interfered with by a knot in the cord. He was inclined to think that the growth in the case reported had arrived at the placental stage, or the tissue would not be so thick.

DR. J. T. WINTER read a paper entitled

#### MORBID SLEEP.

Under the name of *narcolepsy* are grouped together various cases of morbid sleep, varying in intensity from simple drowsiness to a sleep which ends in death. It has been suggested that narcolepsy be divided into three groups, which cannot, however, be clearly defined, as the various divisions will frequently be found to overlap each other. In the first division would be found those cases of perpetual drowsiness where the individual falls asleep on the slightest provocation, and is sleepy when awake, or in which his overpowering drowsiness is relieved by a good nap, which, however, has to be frequently repeated.

In the second class of cases the relations between sleep and wakefulness are so altered that the two conditions alternate at longer intervals than in the normal. Thus, in the case of a Jewess, spoken of by almost all medical writers, who shortly after her marriage fell into a prolonged sleep and was ever afterward irregular in the intervals of her sleeping, the longest time she ever slept is said to have been seven days, and the intervals of wakefulness lasted from two days to twenty days, during which time she did not sleep at all or had only a very little restless slumber. A third class of cases would be like that reported by Dr. Weir Mitchell, in which a patient died after a long and apparently causeless sleep, and in which a most careful postmortem examination failed to detect any lesion.

The African hypnosis, or African sleeping disease, would be an example of the third class of cases. In this disease an individual, usually a native, is attacked with a slight frontal headache, which is accompanied with fever and an overpowering desire to sleep, which gradually deepens into coma and ends in death.

Somnambulism and the night terrors of children can hardly be termed cases of narcolepsy, although the sleep in such cases is decidedly morbid. In the majority of cases of night terrors coming into my hands, I have been able to guide them away from their nocturnal monsters by putting them on shorter

rations for their evening meal, and, in several instances, to break them up completely with a few doses of calomel and santonin. I do not remember to have ever seen a case of night terrors from eye strain.

In the case of children who sleep too much and too profoundly, it will usually be found that there is some organic brain disease, or that the child has been dosed with soothing syrup or paregoric, and in such cases you will usually find a resulting constipation. I well remember being called, several years ago, to see a number of children who were being cared for by some charitable organization. At my first visit one August morning, I found ten out of twelve babies asleep on the floor, and one of the other two so stupid it could hardly open its eyes. At my next visit all the babies present, nine in number, were asleep and lying in various positions on the uncarpeted floor, two were in cribs in another room, sick, and one had died since my first visit and I was called on for a certificate; but as the child was well the day before, and as I had found too many asleep two days in succession, I declined to give the certificate, but instead sent a note to the health officer, which caused the good lady managers so much trouble that I was not requested to continue my visits.

The following case of abnormal sleep came under my care during the holidays. A professional gentleman consulted me about his wife, who had during the last two years become a decided sleepy-head, as he termed it. She is about 23 years of age, of English parentage, married two and a half years, no children, never pregnant, and has never had any uterine disturbances. She developed early and does not remember to have ever had any illness other than the ordinary diseases of childhood and a bad cold or two, but she suffers every little while from constipation. She married at 20, and weighed, as she had done for several years previously, about one hundred and twelve pounds. The first year of her married life she spent with her husband in the small hotels in the villages and mountains of Western Pennsylvania. During this first summer and fall she increased quite rapidly in weight, weighing by Christmas about one hundred and fifty pounds. It was during this time that her husband's attention was first called to her frequent spells of drowsiness, which have been increasing up to the present time. She is a good bicyclist and quite a vocalist, and on her wheel or in company is all animation, always wide enough awake when there is any fun on hand or anything special for her to do; but if she should sit down for a few minutes, even in company, without taking part in the conversation going on about her, she would be off at once to dreamland. She is comparatively easily aroused, but as easily falls asleep again; and while she many times spends the greater part of a day asleep, her night's rest is not at all disturbed and she is just as sleepy again the next day. Her sleep does not appear to have any of the elements of coma, neither can she be said to be a particularly light sleeper, although she

is comparatively easily awakened when she has been asleep but a little while, and especially in company when she wants to keep awake, at such times a slight nudge from a neighbor being quite enough to arouse her; but, as I have already said, if left to herself she will quickly fall asleep again, and the longer she is allowed to sleep the more profound her sleep becomes and the more difficult it is to arouse her. She has never been conscious of an aura or shock of any kind, neither does she see lights or hear sounds, but she has at times what might be called sleep-ptosis when she has slept for many hours and is awakened suddenly. At such times she is hardly able to open her eyes at first, and when she does open them the lids appear too heavy and fall shut again; but after a few minutes this feeling passes off and she is able to open her eyes without any further trouble.

Her urine has not been examined, but her husband has promised to have it done and to let me know whether anything abnormal is found.

DR. J. T. JOHNSON said his trouble was to get patients to sleep. He had seen a number of children in obstetric practice who seemed to sleep more than usual. One had had paregoric and the other was just sleeping the sleep of a good physical condition.

DR. S. S. ADAMS said continued sleep in infants should be looked upon with suspicion. He saw six or eight infants last year who were sleeping more than usual, and in every case narcotics had been given. One child slept for twelve or sixteen hours at a time; the nurse was discharged, and the child screamed for a week.

DR. J. R. BROMWELL said that new-born babies often sleep from exhaustion.

## REVIEWS.

LEHRBUCH DER GEBURTSHILFE ZUR WISSENSCHAFTLICHEN UND PRAKTISCHEN AUSBILDUNG FÜR AERZTE UND STUDIERENDE. A Text Book on Obstetrics. By F. AHLFELD, M.D. Second revised edition, with 338 illustrations and 16 charts. Leipzig: Fr. Wilh. Grunow, 1899.

In discussing the first edition of Ahlfeld's work we stated that there were two kinds of text books—one a compilation of the literature and clippings from other works, and another type, usually less pretentious and more modest in appearance, but which shows originality in every line and reflects the author's personal experience and views.

Ahlfeld's work is a splendid representative of this second type. It is Ahlfeld's own handiwork, and not a machine-made article; a figure clad in homespun, and not a puppet dressed in a garment of many colors.



The first edition deserved the predicate "good," and this much-enlarged second edition should receive the mark "excellent." Many of the shortcomings of the first edition have been obviated, the author having paid due attention to many honest criticisms, which especially found fault with the method in which the various chapters were arranged.

The chapter on the physiology of pregnancy and labor is well written. In the former, however, we desire to criticise Figure 58, which is said to illustrate the normal position of the full-term uterus in a primipara. In our opinion the position is decidedly abnormal and the illustration would well fit a description of a pendulous belly.

Ahlfeld advises the preliminary vaginal douche even in normal cases; this, however, does not surprise us, for Ahlfeld is a strong believer in autoinfection.

The chapter on the physiology of the puerperium contains little that is new. We desire, however, to take exception to the advice that the patient may leave her bed without any danger three or four days post partum. We grant that this may be possible in exceptional cases, but it would certainly be inadvisable in most women.

In the treatment of eclampsia Ahlfeld takes a conservative position and opposes the radical treatment of Dührssen and others who advise the immediate emptying of the uterus. Hot baths and wet pack are advised, to which, in especially grave cases, chloroform anesthesia or morphine injections may be added.

We fully agree with Ahlfeld in the treatment of myomata complicating pregnancy—that is, not to operate in these cases except the tumors should render delivery impossible.

The chapter discussing the complications of labor as a result of a preceding vesico- or vaginal-fixation of the uterus is new and interesting. This operation is decidedly unjustifiable during the child-bearing period, and, if we are not mistaken, the signs are many that it will soon be discarded.

The chapter on puerperal sepsis is concise, conservative, and up to date. As might be expected, the etiology of autoinfection finds a prominent place. The book closes with a brief recapitulation of the diseases of the new-born infant.

We wish to draw especial attention to the chapter on gonorrheal infection, which contains many valuable points.

We heartily recommend this work to both the student and physician as a safe and reliable guide.

J. R.

URINARY ANALYSIS AND DIAGNOSIS. By LOUIS HEITZMANN, M.D., New York. With 108 original illustrations. New York: William Wood & Company, 1899.

It would seem at first glance as if any writer guilty of a new work on the urine owed a distinct apology to the medical profession. If Dr. Heitzmann owes any such apology it is for having delayed so long in giving us a book so greatly needed. Every physician realizes the importance of urine examination.

Nearly every one regards himself as more or less of an expert at it. As a rule his microscope has been bought with that end in view, and with bacteria and blood work as a secondary possibility; and yet there can be no doubt that many a man who examines hundreds of specimens every year will take a beautiful sediment, every feature of which should tell something as it passes under the objective, and yet know little more about the urinary tract of his patient when he has finished the examination than he did when he began it.

The reason for this is obvious. The standard works on the urine give much space to minute chemical analysis—work which can only properly be done in a fully equipped laboratory—and the microscopical portion of the subject is relegated to a very subsidiary position. This will be more clearly evident when it is mentioned that in the book on this subject which is probably the most popular at present in this country, there is *not one original plate* of urinary sediments. And this book is not an exception. It is in many ways an excellent work and quite typical of the books which we depend upon to instruct us in this line.

To see the evil effect of this teaching it is only necessary to send a specimen of urine, in a doubtful case, to the laboratories where such examinations are made for the profession. An elaborate chemical analysis with a most meagre microscopical report will be returned. It happened recently to the writer of this review to see in consultation a patient with pyonephrosis. The urine from the case had been sent to the pathologist of a large institution, and the report was at hand to help in the diagnosis. It consisted of a chemical analysis, figured in most scientific-looking decimals, and with a microscopical appendix which read as follows: "Pus cells numerous; red blood cells in fair number; epithelial cells of the squamous and spindle-shaped varieties; crystals of ammonio-magnesian phosphate; amorphous phosphates: no casts." Considering the fact that the pus was entirely evident to the naked eye in this specimen, there is absolutely nothing in the report which can be said to add a jot to the clinical picture or help the practitioner in the slightest degree. In fact, if anything, it is misleading, as rather suggesting the bladder as the source of the pus. That this is a typical urinary report I think any one who has had experience in this direction will agree. And yet in the case in question an absolutely positive diagnosis of abscess of the kidney could easily be made with the microscope in five minutes. Mixed with the pus corpuscles there were to be found myriads of cuboidal and columnar epithelia from the convoluted and straight collecting tubules of the kidney. These, in the laboratory report, had undoubtedly been classed as pus corpuscles. In justice to the laboratory where the examination in question was made, it should be remembered that failure to recognize the source of the various epithelia found in urine is quite in accordance with the teaching of the text books, and shows what great need there is for a work such as Dr. Heitzmann

has given us. In the urine above mentioned, moreover, there could be seen in every field shreds of connective tissue—certainly a most important feature as showing destructive change, and yet these shreds are not mentioned in the report. The reason for this omission is as simple as it is amazing: the text books do not any of them mention the possibility of finding this important anatomical element in urine!

In reviewing a book as full of meat as Dr. Heitzmann's it is difficult to know where to begin and where to stop. Each chapter suggests a new text. Probably the most important portion of the book is that devoted to epithelia. It will be remembered, as stated above, that at present the weight of authority is against the possibility of determining the sources of the various epithelia found in the urine. Dr. Heitzmann takes the opposite view, and states that while in every urine many epithelia will be found whose source cannot possibly be told, still, *on the average*, it is entirely possible to tell. Those who are inclined to hastily criticise this position as untenable should not forget that this book is the outcome of many years of painstaking work in a limited field by an extremely competent and well-trained observer.

While it is not possible in a brief review to state Dr. Heitzmann's position in detail, it may be said that his method of differentiating epithelia from the various parts of the urinary tract is not based on peculiarities of shapes, as suggested years ago by Sir William Roberts, but upon comparative average sizes. For instance, where small cuboidal epithelia are found which are *one-third* larger than the pus corpuscles found in the same urine, these epithelia come from the convoluted tubules of the kidney. As the epithelia from the ureters and prostate are only slightly larger than those from the kidney (being, according to Dr. Heitzmann, about twice the size of the pus corpuscles), it is evident that care and discrimination are necessary in making the diagnosis. It is the opinion of the writer of this review, however, that this care will be well repaid, for it has been his practical experience that where the urine contains pus corpuscles, and cuboidal epithelia one-third larger than the pus corpuscles, there will invariably be clinical evidences of more or less nephritis; and the practitioner who takes the trouble to follow up this subject will be glad to find that he is able readily to detect the many gradations of nephritis which precede the cast stage, and to see his cases of so-called "functional albuminuria" becoming fewer.

Dr. Heitzmann's chapter on Casts is excellent, and the portion relating to pseudo-casts is of great value, as it is unfortunately a fact that mucous casts and bacterial casts are only too often raised to a dignity they are not entitled to. Even careful insurance examiners have been known to call these appearances hyaline and granular casts.

The chapters on Connective Tissue, on Tumors, and on Extraneous Matters, and the part on Urinary Diagnosis, are all excellent.

Regarding the chemical part of the book, there is not much to say except that it is short, practical, and distinctly secondary to the microscopical part, to which it is added in order to make the work complete. There are two hundred and thirteen pages in the microscopical part, with one hundred and eight original drawings from nature, and only twenty-seven pages in the chemical part—an eminently satisfactory apportionment from the standpoint of actual clinical value to the practitioner.

To sum up, it is a subject for congratulation that we have now a book which does away with the old time honored plates (which each text book seems to have inherited from its predecessor) and gives us some crisp new plates drawn to definite scale. It is also subject for congratulation to find a book which, while adding much that is new, at the same time simplifies the whole subject and materially clears the atmosphere.

W. L. B.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX: A Work of Reference for Medical Practitioners. 1899. Seventeenth Year. Pp. 758, illustrated. New York: E. B. Treat & Co.

This Annual, now appearing for the seventeenth time, is a compilation of abstracts by thirty-two contributors. It treats of all branches of medicine, the various subjects being arranged in alphabetical order. Reference to its contents is also facilitated by a general index. Special chapters are devoted to the subjects of pathogenic bacteria, which is illustrated by a number of colored plates, legal decisions affecting medical questions, and sanitary science. The work is supplied with plates and illustrations where these are necessary.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Vol. I. March, 1899. Surgery of the Head, Neck, and Chest; Diseases of Children; Pathology; Infectious Diseases, including Croupous Pneumonia; Laryngology and Rhinology; Otology. Pp. 490. Philadelphia and New York: Lea Brothers & Co., 1899.

With this volume a new member of the family of medical annuals is presented to the profession. In his preface the editor announces the intention of recording only such articles as contain facts of intrinsic worth and indicate actual progress in the field of medical research. The new annual commends itself by adherence to this policy, the result being a thoroughly readable and admirably systematized compendium of the advances made during the past year. Its clearness from a typographical standpoint leaves nothing to be desired. The subject of Surgery of the Head, Neck, and Chest is treated by J. Chalmers Da Costa, of the Jefferson Medical College, in a most interesting chapter. Alexander D. Blackader, of McGill University,



presents a number of well-selected abstracts covering the ground of Diseases of Children. A thoroughly systematic review of Pathology by Ludwig Hektoen, of Rush Medical College, follows. Under the heading of Infectious Diseases William Sydney Thayer, of Johns Hopkins University, summarizes recent articles upon malaria, typhoid, diphtheria, the bubonic plague, epidemic cerebro-spinal meningitis, pneumonia, and yellow fever. Laryngology and Rhinology are discussed by A. Logan Turner, of the University of Edinburgh; and Otology by Robert L. Randolph, of Johns Hopkins University. An index renders the contents of the annual accessible.

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## BRIEF OF CURRENT LITERATURE.

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### OBSTETRICS.

**Bandl's Ring**—H. Cheron<sup>11</sup> summarizes this subject. During pregnancy the ring does not protrude into the uterine cavity, but a thickening of the uterine wall can sometimes be noticed. After delivery Bandl's ring is thick and forms a protrusion which closes and protects the cavity of the body of the uterus. Subsequently, during involution, the ring approaches the internal os. The two theories as to its origin are: That it corresponds to the os internum, and that it is formed from the lower part of the body of the uterus. Its formation is due to any modification of the soft parts or bony framework of the pelvi-genital canal, which obliges the uterine muscle to over-exert itself in expelling the fetus, or to the use of ergot, balloons, etc., which have the same effect. It may occur with any presentation, but most frequently with those of the shoulder, breech, or face. It may form during twin pregnancy between the fetuses, when one is placed above the other. The formation of a retracted band of muscle in any other situation than that occupied by Bandl's ring has never been observed during labor. Retraction of the ring is always accompanied by retraction of the uterine body. It may occur when the fetus is situated in the body of the uterus or engaged in the lower segment. The principal maternal complications are spontaneous or traumatic rupture of the uterus, reproduction of the ring at the time of delivery of the placenta, postpartum hemorrhage, and puerperal infection. The infantile mortality is about 45 per cent, chiefly due to interference with the placental circulation on account of excessive uterine contraction. The diagnosis of the existence of Bandl's ring can usually be made only by intrauterine examination. Its presence interferes seriously with the performance of version, especially if a portion of the fetus is situated in the lower segment of the uterus, and rupture of the uterus may follow such attempts. If the child is dead embryotomy usually succeeds. If living, and the retraction very strong, forceps are the method of choice in

presentations of the vertex, but must be absolutely avoided in face presentations. In twin pregnancies retraction of Bandl's ring should not be allowed to interfere with the choice of an operative procedure for the extraction of the second fetus, as it is usually moderate and easily dilatable.

**Early Diagnosis of Pregnancy.**—Braun-Fernwald<sup>15</sup> and many others find that a change in the consistency of the uterus is the earliest symptom of pregnancy. Braun-Fernwald's exhaustive investigations show that the pregnant uterus is of irregular form, thicker on one side, and with a shallow depression anteriorly. This latter symptom could always be made out, and is explained by the engrafting of the ovum on one side. It is especially important to remember that this latter symptom is absent in extrauterine pregnancy.

**Treatment of the Umbilical Stump.**—Kusmin<sup>17</sup> recommends a new and simple treatment of the umbilical stump, which consists in encircling the stump, at a distance of about one centimetre from the abdomen, with a rubber ligature. The remaining portion is surrounded with a plaster-of-Paris bandage, which prevents infection and permits the child to be bathed. Kusmin has applied this method in 42 cases with favorable results.

Horn<sup>18</sup> describes a method which is employed in the Cologne Maternity Hospital and which consists in thickly covering the umbilical stump with powdered clay. Asepsis of the umbilicus depends mainly on excluding moisture and air; this is obtained by this method. Horn, like many others, advises against the bath until the umbilical wound has entirely healed.

**Postpartum Hemorrhage.**—Bastain<sup>23</sup> recommends a novel method of treating postpartum hemorrhage. A long Cusco speculum is introduced into the vagina, and, after opening the same as far as possible, the vagina is firmly tamponed with iodoform gauze. The speculum is not removed, but left *in situ*. Bastain reports good success in very desperate cases when all other means failed to arrest the hemorrhage.

**Symphyseotomy.**—V. Abelly<sup>11</sup> states that in 22 cases of deformed pelvis for which symphyseotomy was performed by Queirel the maternal mortality was 13.6 per cent, the infantile 21 per cent. Of 136 cases of symphyseotomy performed since 1896 and collected by B. Rubinrot<sup>11</sup> the maternal mortality was found to be 11.03 per cent, the infantile 13.97 per cent. Among the difficulties and accidents noted in these 136 cases were 22 instances of hemorrhage, operative difficulties due to the presence of adipose tissue in 9 cases, of cicatricial tissue in 3 cases previously symphyseotomized, deviations of the symphysis in 11 cases. Vesico-vaginal fistulae occurred in 12 cases, prolapse of the cord in 6. In 5 cases the bladder was pinched between the pelvic rami; in 3 difficulty was experienced in approximating these; 3 deaths occurred from shock and 10 from infection out of a total of 44 infected cases. Suppuration of the wound was noted in 14 cases. Other complications, such as abscess formation, slow union, etc., occurred

in 11 cases. Temporary urinary difficulties in 16 cases, persistent incontinence in 12, trouble with the sacro-iliac synchondrosis in 7, and difficulty in locomotion in 10 cases, are mentioned.

**Influenza during Pregnancy.**—E. A. R. du Cotret<sup>12</sup> has never observed a case in which influenza exerted an unfavorable effect upon pregnancy. He usually treats such cases with quinine in three doses of five grains each at intervals of four hours and subsequently two grains three times a day. In spite of the reputed oxytotoxic action of this drug, the writer has never caused an abortion by its use in pregnant cases.

**Rupture of the Uterus.**—Gibert<sup>10</sup> reports a case of rachitic pelvis in which a transverse tear, 13 centimetres long, of the vesico-uterine cul-de-sac, and a vertical laceration of the uterus which extended 10½ centimetres in the retracted organ, had occurred during attempted delivery. Basiotripsy was first performed upon the isolated head, which remained in the uterus, and the lacerations were then sutured through a median abdominal incision. Hysterectomy was deemed too dangerous on account of the patient's general condition. Death occurred from shock.

**Cesarean Section.**—F. C. Madden<sup>1</sup> gives notes on two Cesarean sections performed in the Kasr-el-Aini Hospital, Cairo. One case made a good recovery, both mother and child living. In the other the child is alive; the mother also recovered from the operation, but died in a few days from lung trouble.

**Eclampsia.**—Gibert<sup>10</sup> reports a case of eclampsia during labor in which both mother and child were saved by manual dilatation of the cervix after failure of Champetier's balloon, the delivery being completed by application of forceps at the superior strait. He advises this method of dilating the cervix when the uterine contractions are too infrequent and ineffective to make the Champetier's balloon efficient.

Fieux<sup>10</sup> reports 6 cases of eclampsia, from a study of which he formulates the rule that when a woman at or near term and with a living child is seized with eclampsia, labor should be induced or hastened if already started. As the life of the child is a question of minutes, Fieux advocates rapid manual dilatation of the cervix under chloroform.

Sandow Davis<sup>1</sup> reports a case of eclampsia in which he gave potassium bromide and chloral hydrate, twenty grains each, and ordered it repeated if possible. This lessened the convulsions for a short time, but they became worse. He next drew twelve ounces of blood, and the convulsions immediately stopped and did not recur. He reports this case to show immediate relief given by blood-letting.

**Axillary Mamma.**—George Templeton<sup>1</sup> reports a case in which he found the following condition: On examination a spongy mass could be felt just under the skin, passing beneath the outer border of the pectoralis major. The outline was irregular and lobulated; it was as large as a walnut and pro-

duced a visible swelling when the arm was raised. It was movable around a point of attachment to the skin, where a minute pore could be seen, and on compressing the mass several drops of fluid of a bluish-white color exuded from the opening. There was no areola around the opening. On microscopic examination it presented all the characteristics of human milk. The swelling was quite separate from the pectoral muscles.

**Hematuria during Pregnancy.**—William B. Young<sup>2</sup> reports the case of a young woman, six months pregnant, who was troubled with obstinate hematuria. The urine, besides containing blood, contained a high percentage of albumin. He prescribed fifteen grains of gallic acid and fifteen drops of tincture of iron every four hours, alternating the two. He also ordered hot baths twice a day and a fluid diet. This treatment continued for three days without affecting the hematuria, and was abandoned. He next gave ten drops of fluid extract of ergot every four hours, alternating with the iron, which he gradually increased until she got twenty-five drops at each dose. This treatment was carried out for a few days, but was discontinued as the fetus was not observed to move in the womb for two days. The urine cleared up shortly after the fetus died and remained clear for five days, when an abortion occurred. Young brings out the following points: (a) Did the ergot kill the child? (b) Was the hematuria relieved by the ergot or by the death of the child? (c) Was he right in giving ergot?

**Adherent Placenta.**—Charles B. Reed<sup>7</sup> states that the placenta is adherent in about 1 in 500 or 600 cases and that the mortality is about 18 per cent. He discusses the etiology under three headings: 1. The causes attributed to the placenta. 2. Those attributed to the uterus. 3. Those attributed to the utero-placental connection.

*Placental Causes.*—There is a diffuse form of inflammation which arises in the connective tissue and the placenta becomes firm and pale. There is a second form which arises in the arteries and adjacent tissues of the fetal placenta and gradually involves the entire organ. Syphilis and rheumatism are also causes of adherent placenta. Placenta succenturiata has an etiologic importance from the fact that the main portion of the placenta could be delivered and the smaller portion left. Placenta previa is the most common placental anomaly in connection with adherent placenta. An abnormally thin placenta is more difficult to expel.

*Uterine Causes.*—Atony of the uterus is probably the most important factor; this may involve the entire uterus or only the placental site. Adherent placenta is often found in cases of inversion of the uterus. Lack of contractile power is also given as a factor. Endometritis is given as a cause by some authors, but some other factor must also be present.

*Utero-placental Causes.*—Winchell mentions extravasations of blood into the decidua serotina and thence into the



intervillous spaces. Myulasy claims that the most common condition met with in extensive adhesion is a deposit of fibrin originating in the decidua and involving the opposing surfaces of the placenta and the uterus, the cement substance nearly always being a tough, fibrous material difficult to separate from the uterine wall.

*Consequences of Retention.*—There is a mortality of 7 per cent. Hemorrhage, more or less severe, requires that the placenta shall be removed in order that the uterus may contract. The placenta may remain in the uterus for a variable length of time, even as long as one year. The retained placenta may form a polyp or give rise to a hydatid mole, or become the seat of a neoplasm which may require the removal of the uterus.

In this condition the fingers should be introduced into the uterus under rigid aseptic precautions, and inserted between the placenta and the uterus, the placenta being completely stripped off and brought away. The external hand should secure vigorous uterine contractions according to Credé's method. If you fail to remove the placenta at once, pack the uterus for forty-eight hours, when the placental remnants can be easily removed by the finger. The tamponing is much safer and equally as effective as the curette, if employed under extreme antiseptic precautions.

#### GYNECOLOGY AND ABDOMINAL SURGERY.

**Geography of Cancer in England and Wales.**—Alfred Haviland<sup>26</sup> makes the following propositions: 1. That the districts having the highest death rates from cancer among females were invariably associated with seasonally flooded areas traversed by or in close propinquity to fully formed rivers. 2. That, geologically, these *high* mortality districts were characterized by alluvium and subsoils of clays of every variety of age and formation. 3. That the districts having the *lowest* death rates from cancer were situated on elevated land, where the drainage was good and the physical features of the country such as to preclude the possibility of floods; where rivers derived their sources, and where in fact they were not fully formed. 4. That, geologically, these *low* mortality districts were characterized by the oldest paleozoic rocks, especially those of the carboniferous limestone period, the liassic, oölitic, and cretaceous limestones. The above facts were drawn from a geographical chart of female cancer for the decade from 1851-60. The death rate in England and Wales at all ages from cancer was, in 1851-60, among males 1.94, and females 4.33; in 1881-90, among males 4.30, and 7.38 among females. After studying the geographical conditions of cancer for the years 1881-90, he is asking the question, How is it that limestones are always associated in England and Wales with the lowest death rate from cancer, and the flooded clays with the highest?

**Cancer and Cancer Houses.**—D'Arcy Power<sup>26</sup> cites numerous instances in which cancer predominates in certain

mostly low-lying districts. He has also localized epidemics of cancer to villages, to houses, and even to a single room. He believes the cases which he cites raise a strong presumption in favor of cancer being an infective disease, to which some are much more susceptible than others. Locality seems to be a predominant factor, and the nature of the locality associated with cancer appears to be so characteristic that it is possible to say whether or not it is advisable for a patient with a well-marked family history of cancer to reside in a given spot.

**Etiology of Cancer.**—H. G. Plimmer<sup>26</sup> makes the following deductions from experiments and observations: 1. That in cancers there are certain intracellular bodies (which may also be found rarely outside the cells) which are neither parts of the cell structure nor any known degenerative change, and which are only found in cancer; and that they are only found at the periphery of the growing parts of a cancer, and not in the degenerated parts; and that these bodies have distinctive micro-chemical reactions. 2. That there are certain cancers, which occur rarely, in which these bodies are present in enormous numbers. 3. That by the use of appropriate means these bodies can be isolated and cultivated outside the body. 4. That these cultures, when introduced into certain animals, can cause death, with the production of tumors, so far of endothelial origin; and that pure cultures can be made from these tumors which, if inoculated into suitable animals, will produce again similar growths.

**Parasite of Cancer.**—Wm. Russell<sup>5</sup> states that to any one going carefully through Sanfelice's work there is only one opinion possible, and that is that it is a very careful piece of investigation and research. The links in the chain of evidence are simple and strong, and may be thus summarized: Investigating blastomycetes, he finds appearances similar to those described as occurring in cancer both outside and inside of the cells. He finds that in different animals the pathogenic effect varies from a somewhat rapid infection with great proliferation of the parasites down to a much less acute infection. In dogs, by inoculating them into the peritoneal cavity, he recovers the parasite from the lymph glands and passes them through another dog, and so on. Having in this way modified the parasite by the chemico-vital influences in the dog's body, he inoculates the mammæ and testicles of dogs with the modified organism and finds that it produces epithelial growths with metastases. Russell cites several other men who have succeeded in cultivating blastomycetes from tumors, mainly malignant. All of these add confirmation to Sanfelice's results.

**Frequency and Nature of Cancer.**—Roswell Park<sup>26</sup> states that if for the next ten years the relative death rates are maintained, we shall find that in 1909 there will be more deaths in New York State from cancer than from consumption, small-pox, and typhoid fever. He believes that cancer is due to

some parasite, and claims that this has been proved both by cultures and inoculations made in a laboratory in Buffalo. He states that it is contagious and is often transferred from one person to another. He explains the frequent occurrence of cancer at the orifices of the body by claiming that they are the most exposed of all parts to infection.

**Cancer in the Lower Animals.**—J. M. Fadyean,<sup>26</sup> in discussing sixty-three cases of malignant disease in lower animals, states that of forty-nine cases of carcinoma twenty-five were in horses, sixteen in dogs, five in oxen, two in cats, and one in a sheep. Of fourteen malignant adenoma and adenocarcinoma seven were in dogs, six in horses, and one in a sheep. One of the commonest animals, the pig, was not represented in the list. The udder of the cow is relatively, if not absolutely, immune from carcinoma; this is difficult to reconcile with the theory that carcinoma of the human breast is connected with the irritation of lactation.

**Statistics of Cancer.**—A. Newsholme,<sup>26</sup> after a careful survey of the statistics of death in England and Wales, concludes that they do not justify the conclusion that an increase in cancer mortality has occurred within recent years. They rather tend to the conclusion that the increase is only apparent, and is due to improved diagnosis and more careful certification of the causes of death, especially the latter. Cancer kills annually about three-eighths of the number claimed by phthisis; but cancer is rare before middle life, and phthisis occurs at any age. It is between three and four times as fatal as typhoid fever, and has a much larger annual death roll than either measles or whooping cough, which have a much larger population for their operations.

**Conservative Surgery.**—Lawson Tait<sup>27</sup> believes in such radical surgery as will preserve his patients from further risk, and he does not regard the "sexual appetite argument" as worthy of any but the brothel-keeper, with whom it would, of course, have weight.

**Diagnostic Importance of Uterine Hemorrhage.**—A. E. Giles<sup>28</sup> states that in virgins below the age of 20 the most common cause of hemorrhage is uterine catarrh, due to exposure at a menstrual period. Between 20 and 30, bleeding is most often due to a uterine polypus, and occurs in the intervals of menstruation as well as at the periods. Between 30 and 40, uterine myoma becomes an important cause of hemorrhage. A subserous myoma has often no effect; an interstitial generally causes menorrhagia, while as the growth becomes submucous the tendency to hemorrhage increases. When uterine hemorrhage is so profuse as to lead to excessive blanching, a polypus, either mucous or fibroid, may be diagnosed. Above 40, menorrhagia is caused by senile or hemorrhagic endometritis, but must be assumed to be malignant disease. In patients who have never been pregnant but are married, the causes of hemorrhage are similar to those of the single woman, with a few exceptions. When pyosalpinx occurs in a woman only

shortly married, we suspect that it is of gonorrheal origin; hemorrhage may mean uterine congestion due to excessive coitus. When the patient is pregnant and hemorrhage comes on after a few months, it points to a threatened miscarriage. The possibility of a hydatid mole must be remembered. From the middle of pregnancy hemorrhage may be due to placenta previa or to a partially detached placenta. The bleeding is occasionally due to a varicose vein in the vagina or an epithelioma of the cervix. We also have hemorrhage from ectopic gestation. In patients who have recently been pregnant the menorrhagia may be due to subinvolution when it comes on shortly after confinement. Other causes are polyps, carcinoma of the cervix, senile endometritis, and the menopause. Hemorrhage after the menopause is almost always due to cancer. In every case of uterine hemorrhage, never fail to make a careful vaginal examination at the first opportunity; the only exception to this rule being in the case of menorrhagia of recent duration in a young unmarried woman, when the proper procedure is to first try medicinal measures.

**Treatment of Appendicitis when Pus is Present.**—George Woolsey<sup>29</sup> emphasizes the following facts: Ventral hernia may largely be avoided, in spite of the necessary use of drainage, by using McBurney's muscle-splitting incision, by suturing most of the wound and the use of a secondary suture in the part left open, or by the early removal of the gauze drain, facilitated by the use of a rubber tissue collar where it passes through the wound, allowing the walls of the cavity and sinus to become approximated, thus avoiding the necessity of granulation. The relative frequency of hernia following pus cases with drainage is another argument for early operation in appendicitis.

**Ovarian Cysts in the Negress.**—T. R. Brown<sup>30</sup> gives an analysis of the various kinds of ovarian cysts occurring in the white and colored for a period of six years from January, 1892, to January, 1898. In 191 cysts only 12 were in negroes—a proportion of 1:15; while the proportion of white and colored patients treated was 1:6.75, *i.e.*, ovarian cysts were 2.2 times as frequent in white as compared with colored women. Dermoids were found to be relatively more than twice as common in the negress. Unilocular cysts are very infrequent in the negress, being in the proportion of 1:26.5, or only twice out of 55 cases reported.

**Gynecology among the Insane.**—Ernest Hall<sup>31</sup> urges every physician to make a thorough examination of the pelvic organs under anesthesia in every case of insanity before signing commitment papers. He believes that if this rule was carried out one-third of the patients would be sent to the hospital instead of to the asylum.

**Stypticin in Uterine Hemorrhage.**—H. J. Boldt<sup>32</sup> states that he has found this drug to be of service in certain cases of hemorrhage from the uterus. In hemorrhage from cancer, fibromyomata, endometritis fungosa, and retroflexion with en-



dometritis it has been found to be of no avail. He has found that no unpleasant symptoms are produced even when doses of four and a half grains were given.

**Ovarian Tumor.**—E. W. Cushing<sup>33</sup> reports the case of a young girl, 11 years old, who had one ovary removed and a large ovarian tumor punctured and its fluid contents evacuated during an attack of typhoid. The operation was done to relieve the patient of the dyspnea caused by the tumor. She recovered.

**The Uterus in Pelvic Operations.**—E. F. Fish<sup>33</sup> believes the uterus should be left in place, because it is an important sexual organ in its natural site, and consequently not in the way of any other pelvic organ; it preserves the vaginal vault and maintains the contour and natural length of the vagina; because it precludes the possibility of vaginal hernia, prevents prolapsus vaginæ, and delays atrophy of the vagina; because it minimizes nervous shock and depressing mental manifestations; and, last, in the event of successful ovarian transplantation it might be reinstated as an organ of procreation.

**Rupture of the Uterus.**—F. D. Kendall<sup>33</sup> reports two cases of this variety. In one, after the abdomen was opened, the child was found in the abdominal cavity and was delivered alive, but died just after delivery. In the other case the mother died shortly after he arrived, but the child was still alive, and he opened the abdomen post mortem and removed a boy baby weighing nine pounds. This boy is alive.

**Primary Tumors of the Suprarenal Gland.**—Otto Ramsay<sup>30</sup> finds the following facts true: (1) That while malignant tumors of the suprarenal gland are rare, they should be considered as one of the factors to be eliminated in the presence of an abdominal tumor; (2) that they are somewhat common in the male sex; (3) that while in a certain proportion the symptoms are fairly well marked, there are many in which no symptom points to the suprarenal origin; (4) that rapid loss of strength, debility, emaciation, digestive disturbances, and abdominal pain are the most important symptoms; (5) that skin changes are rather the exception than the rule; (6) that they run a rapid course, the duration being shorter than usual with a neoplasm in other organs; (7) that the diagnosis is impossible in many and difficult in all cases; (8) that a differential diagnosis must be made from other suprarenal diseases, from renal tumors, from hepatic tumors, from diseased retroperitoneal glands, from cysts and new growths of the pancreas; (9) that the prognosis is always serious, even following a successful operation, from the great frequency with which both glands are found involved and the tendency to early metastases; (10) that operation gives the only hope of relief, and that it has been successful in two cases; (11) that the principal difficulties in the operation are the friability of the tumor, the great tendency to hemorrhage, and the frequency of adhesions.

**Foreign Bodies in the Vermiform Appendix.**—J. F. Mitchell<sup>30</sup> discusses this subject with especial reference to pointed

bodies. He collected 1,400 cases from various sources in the last ten years and found about 7 per cent of true foreign bodies. By far the most important class of foreign bodies is the class of pointed bodies. Conspicuous among pointed bodies, and occurring with apparently greater frequency than any others, are pins. Abbe has met with two foreign bodies, and one of these was a pin. Park and McBurney had each two cases. Rugsch, in 1691, reports a case of this variety. Mitchell has collected 28 other cases in which a pin was found in the appendix at operation or at autopsy, together with two instances in which a pin had perforated the cecum. They have been found more often in males than in females (males 17, females 9). All types of appendicitis may result. Most often there is a rapid perforation and abscess formation following the first appearance of symptoms. Dr. McBurney removed an appendix which contained two pins lying side by side and perforating the opposite walls. Light-weight bodies, like grape seeds, are very seldom found. On the other hand, heavy, sharp bodies, like a pin, are more often found, the pin being the commonest and most dangerous of foreign bodies.

**Foreign Body in the Vagina.**—V. Dujon<sup>34</sup> records the removal from the vagina of a young woman of a metallic box which had been introduced into the posterior cul-de-sac five years previously. It had resulted in the formation of a recto-vaginal fistula, a membranous septum which nearly occluded the vagina just below, and a fetid suppurative discharge, for relief from which the patient applied for treatment.

M. R. Blondel<sup>35</sup> reports the removal of a pessary which had remained in the vagina for thirty two years, and only recently proved inconvenient by causing a fetid, irritating, bloody discharge.

**Bacteriology of the Genital Canal.**—J. Hallé<sup>34</sup> states that microscopic organisms occur normally upon the vulva and vagina in considerable numbers. The vagina contains aerobic and anaerobic bacteria, the latter appearing to increase in the upper part of the vagina, and especially upon the cervix. From this point upward the genital tract normally contains no bacteria. The aerobic bacteria are, chiefly, a non-pathogenic streptococcus which can be differentiated from the streptococcus pyogenes; two varieties of bacilli which resemble that of diphtheria in the character of their culture upon serum, but differ in their characteristics and in their innocuousness toward animals; other non-pathogenic bacilli. None of the vaginal bacteria are pathological in their action upon animals. The anaerobic germs of the vagina, cervix, and vulva are capable of causing abscesses and gangrene in animals when they are inoculated with pure cultures.

**Influence of Operations upon the Uterus.**—Pinard<sup>34</sup> analyzes a number of cases in which operations were performed upon the uterus in respect to the influence upon subsequent pregnancies. He describes one case in which Emmet's operation upon the cervix and a plastic operation upon the vagina

were followed by pregnancy, which led to rupture of the uterus, peritonitis, and death. In another case, in which curettage and Schröder's operation were performed, labor took place at seven and a half months. The membranes ruptured prematurely, the shoulder presenting, heart sounds distinct. As dilatation of the cervix did not take place, a Champetier's balloon was introduced, and three days after the rupture of the membranes embryotomy was performed upon the putrefied fetus.

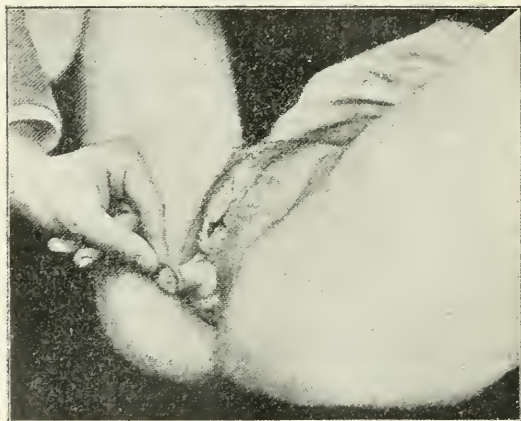
**Ovulation.**—Keiffer<sup>40</sup> has experimentally studied the ovarian circulation by means of injections into the arterial system. He finds that during the period of genital repose the vessels running from the hilum of the ovary toward the cortex are undeveloped and show few branches surrounding the maturing Graafian follicles, while toward the approach of menstruation the vessels form a rich network around the follicles which are nearly ripe. The youngest follicles are nearest to the surface of the ovary, and those developing most deeply situated and therefore nearest to the blood vessels entering at the hilum. These follicles really remain at the same distance from the surface, although they appear to approach it, on account of their increase in size which causes a protrusion of the overlying cortex.

**Vascular Anatomy of the Bladder.**—Keiffer<sup>40</sup> has examined a number of injected specimens of the urinary bladder, and calls attention to the remarkable vascularity of the submucous layer of the neck of the bladder. He believes that simple vasomotor changes may regulate the permeability of the passage from the bladder to the urethra, independently of muscular contraction or relaxation of the vesical muscular fibres at this point. As emotion, heat, or cold may cause micturition, it seems to the writer reasonable to suppose that their action is primarily upon the vasomotor system and secondarily upon the muscular.

**Pseudo-hermaphroditismus.**—Neugebauer,<sup>26</sup> who is an authority on this most interesting and much-discussed subject, reports a case of hermaphroditism which is almost unique in medical literature. A Jewish woman, 27 years old, who was confined about ten days before, presented herself for the purpose of obtaining a position as wet-nurse. She was of female status, had well-developed breasts, and both voice and growth of hair were of female character. Below the normal mons veneris is the normal vulva, showing yet traces of a recent delivery. About one centimetre posterior to the fourchette is found an organ forty-five millimetres long, of erectile tissue, becoming hard and elongated when handled. It terminates in a glans penis, partly covered by a preputium, which can be retracted to the well-defined corona glandis. The covering cutis is wrinkled as on a membrum of an older subject, this becoming smooth when the organ erects itself. In place of the meatus a shallow depression is seen. Two well-defined corpora cavernosa are present, one of which can be traced to

the ramus of the pubes. The thickness of the erected organ is about the size of the little finger. During the erection the woman gives decided symptoms of sexual desire. Examination per rectum showed the absence of other abnormal structures. The accompanying photograph well illustrates this interesting phenomenon.

R. C. H.,<sup>19</sup> 21 years old, unmarried, stated that she never menstruated and was always healthy. She always noted two protrusions on each side of the pubes, which had never caused pain nor discomfort. About four weeks before admission she experienced severe pain in the right protrusion, which continued, at the same time the mass increased in size. She is poorly nourished, of female habitus, breasts well developed, hair long, face smooth without growth of hair. Upon the mons veneris is a moderate growth of hair. The large labia



Pseudo-hermaphroditismus (Neugebauer).

are present, but terminate rather abruptly posteriorly. Small labia absent. Clitoris about two centimetres in length, at its apex a large glans without an opening. Vagina about five centimetres in length, ending in a blind cul-de-sac. Bimanual examination negative; no uterus can be felt through either the vagina or rectum. Rest in bed did not abate the pain, and it was therefore decided to cut down upon the tumors. These appeared to be normally developed testicles, which diagnosis was substantiated by a microscopical examination demonstrating numerous spermatozoa. The case was therefore one of pseudo-hermaphroditismus of female habitus.

Berthold<sup>22</sup> describes a very interesting case in which this condition was diagnosed through an accidental laryngoscopic examination. The vocal cords of the person, who was of striking female habitus, were very broad and long, as only seen in males; this led to an examination of the genitals, which at



first sight were those of a woman, but upon closer examination proved to be of male type.

**Sclerotizing Granuloma of the Pudenda.**—A. Powell<sup>1</sup> describes a case: Hindu female; no evidence of syphilis. The right labium majus was hypertrophied and covered with a fine nodular growth presenting the appearance of a piece of mammillated hematite. The nodules were smooth, shiny, covered with epithelium, firm and closely packed together. They varied in size from a No. 8 shot to a small marble, the majority being the size of a small buckshot. The labia minora were enlarged, flattened, pale in color except on the margin, which was crenated by the small tumors which composed it. A bridge of similar new growth joined the labia across the mons and extended a little way up the fold of the groin. There was little ulceration, considering the filthy condition of the parts. The diseased parts were removed and the result was satisfactory, the patient being able to keep the parts clean and urinate without spraying the urine on her buttocks.

**Suppurating Cysts of Both Ovaries.**—Ernest A. T. Steele<sup>2</sup> cites a case which strongly illustrates the dangers to which small ovarian cysts may give rise should they become infected and suppurate after parturition or miscarriage. The sequence of events in the case reported is as follows: The patient had a miscarriage, followed by septic absorption from the uterus and cellulitis of the left broad ligament; infection of the left cyst and an attack of peritonitis; adhesion of a loop of bowel to the dermoid cyst of the right ovary; and, lastly, infection of the dermoid cyst from the abscess which formed between it and the bowel. These tumors were removed by abdominal section. it taking one hour and a half to perform the operation. If these tumors had been discovered before the patient became septic, it would have been a simple proceeding to have removed them, instead of being difficult and dangerous.

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## DISEASES OF CHILDREN.

**Bacteriological Examination of the Fauces in Scarlet Fever as a Means of Preventing Post-scarlatinal Diphtheria.**—G. C. Garratt<sup>1</sup> and J. W. Washbourn give the results of their observations. In hospitals for infectious diseases, patients convalescing from scarlet fever are not infrequently attacked with diphtheria. The authors believe that post-scarlatinal diphtheria is due to the introduction of unrecognized cases of diphtheria into the scarlet fever wards, and that this can only be obviated by systematic bacteriological examination of all cases on admission, and by separation of those in whose throats bacilli are found. If Hoffman's bacillus, which the authors believe to have no direct causal connection with diphtheria, be excluded, the number of such cases, though probably greater among patients more liable to double infection, should not be beyond the isolation resources of most fever hospitals; moreover, absolute isolation does not seem to be essential. At any rate, the method deserves trial on a larger scale. Some supervision of cases of rhinitis with diphtheria bacilli in the nose should be practised, such as keeping them in bed while the discharge continues. These cases do not seem to have given rise at the London Fever Hospital to faucial or laryngeal diphtheria, yet such an occurrence is quite possible.

**Chorea.**—J. Howe Adams<sup>2</sup> writes of the successful treatment of this affection with trional and sulphonal, in cases in which Fowler's solution did not seem to act with happy results. A little girl under 9 years of age is making excellent improvement under this treatment. She has not been confined to bed all the time, but is put to bed early at night, and spends much of her time at rest. She has been bathed regularly and fed well, her diet consisting chiefly of vegetables and fruit, with milk in large amounts. Fowler's solution seemed to increase the choreic movements, so trional was given in two-grain doses every four hours. Almost at once its administration was followed by good results, ending in the ultimate recovery of the patient. Nerve specialists report good results from the use of trional and sulphonal in these cases.

**Clubfoot, the Treatment of.**—R. W. Murray,<sup>3</sup> in the course of some remarks on this subject, says that where the deformity is slight manipulation alone may suffice, or manipulation and splints, after division of the tendo Achillis. But in the more severe cases he almost invariably performs the following operation: The infant being under chloroform, he passes a tenotomy knife immediately in front of the internal malleolus and divides subcutaneously the plantar fascia and all the resisting tissues in the inner border of the foot down to and including the astragalo-scapoid muscle. Then he over-corrects the varus deformity and divides the tendo Achillis. A cyanide gauze and wood-wool dressing is applied at the points of puncture, the foot and leg from the toes to below the knee covered with a domet bandage, and the foot fixed in the corrected position with a plaster-of-Paris bandage. On the fourth or fifth day

the dressings are removed, the foot dusted with zinc and starch powder, and the plaster reapplied over a domet bandage only. The author usually changes the plaster of Paris every three weeks, and in favorable cases dispenses with plaster or splints of any kind at the end of two months, relying then upon constant manipulations by the nurse or mother, and occasionally by himself, to keep the foot straight. If at any time there should be a tendency to inversion of the foot, the plaster-of-Paris bandage is reapplied.

**Convulsions.**—Louis Fischer<sup>4</sup> reports an unusual case of convulsions in a child 4 years old, extending over four days, with ultimate recovery. The history showed that the child had been in apparent good health up to its first convulsion, but had overloaded its stomach. Laxatives, emetics, mustard foot baths, and large doses of potassium bromide and chloral hydrate had been given without effect. The child when first seen had a temperature of 105° F., pulse 160; it was in a dazed condition, had a furred tongue, and complained of headache. The face was deeply congested, and there had been several attacks of epistaxis. The diagnosis was acute gastritis of a severe type. Lavage of the stomach and intestines was tried, but the convulsions continued. Hot mustard foot baths, ice to the spine and head, with chloral, were ineffectual. Cannabis indica added to the other drugs produced no perceptible effect. On the evening of the third day, during the height of a convulsion, two leeches were applied behind the ears, over the mastoid process of the temporal bone, and four from the nape of the neck along the spine, about four inches apart. There was considerable bleeding, which was easily checked by applying a drop of collodion, and there was such marked improvement that on the following day there were no convulsions for eight hours. Twenty-four hours after the first application the leeches were applied again. The child remained brighter and the convulsions ceased. Careful dieting, and cleansing the gastrointestinal tract with small doses of calomel, completed the treatment. Dr. Fischer was impressed with the value of local depletion in this case, being confident that most of the success was due to the relief afforded by the leeches. One of the most convenient places is certainly behind the ears, and a leech can also be applied with benefit at the *alæ nasi*, for here there is distinct relief through the frontal sinus.

**Cyst, Congenital Serous, of the Infraclavicular Region.**—Walravens<sup>5</sup> reports the case of a well-developed child of 3 years who presented a congenital tumor as large as an apple in the infraclavicular region. Under chloroform narcosis the growth was removed, and was found to be composed microscopically of cysts having a connective-tissue wall and an endothelial lining, the whole covered by thickened epidermis. The origin of the tumor was the lymph and blood capillaries in the deeper layers of the cutis. The child recovered perfectly from the operation.

**Diabetes Mellitus in Children.**—Charles W. Townsend<sup>6</sup> writes that this disease in infants is to be distinguished from the temporary glycosuria which is sometimes seen in infants as a result of digestive disturbances. Grosz has shown that milk sugar can be assimilated by healthy breast-fed children to the extent of fifty grains per pound, which is more than twice as high as in the case of adults. This limit is, however, easily lowered, especially by digestive disturbances, and the glycosuria in such cases is believed to be due to a lowering of the assimilative limit and partly to the action of intestinal bacteria. By way of summary, a general picture of diabetes mellitus in children as seen in these cases may be sketched as follows: The initial symptoms are apt to be incontinence of urine due to polyuria, nervous irritability, and great thirst. Strength, flesh, and color may sometimes be retained until nearly the end. A gain of weight and height even may occur without any amelioration of the disease. The disease goes on to a fatal issue much more rapidly in children than in adults, the duration in the author's cases varying from two to fourteen months. Death is generally preceded by coma.

**Diphtheria Antitoxin by the Mouth.**—John Zahorsky<sup>7</sup> says that Roux denies the fact that diphtheria antitoxin enters the circulation when introduced by the mouth, and that Escherich failed to detect it in the blood of infants after a dose had been given by the mouth. The author has previously reported the results of its use by the mouth in a series of nine cases, all of which recovered. He also used it as a prophylactic measure in about forty cases in which there had been more or less exposure to the infection, and in not a single instance did diphtheria supervene. While as a curative measure the administration per os presented certain defects, as an immunizing method it certainly seemed to him the more ideal, consequently he urged that this method should receive the preference when prophylaxis was sought. Escherich asserts that the antitoxin is not appropriated by the organism; but the author, while admitting that the number of his cases is insufficient to prove the curative effect, was convinced by the promptness of cure after two days that the serum is absorbed. The results are more conclusive in the large number of cases immunized. In several families the children were compelled to remain in the same room with the patient, and yet none contracted the disease. Since the publication of the first report he has used this method of immunizing infants in an additional series of fourteen cases in his private practice and one hundred and fifty infants in the Bethesda Foundling Home. Twice in this institution, after an outbreak of diphtheria among the inmates, the little patients were given antitoxin or antitoxic milk by the digestive tract, and yet none contracted diphtheria. Clinically it seems to be demonstrated that antitoxin can be absorbed by the digestive tract, and biological tests support this view. Fisch, after a large number of experiments on animals, con-



cludes that the antitoxin reappears after twenty-four to thirty-six hours. He says : "It has therefore been established that while after twenty-four or thirty-six hours nearly the whole amount of antitoxin can be recovered from the blood, when the antitoxin has been taken by the mouth, after five, six, nine, and eleven hours nothing or very little of it can be found." He has also proved by experimentation that artificial gastric juice does not modify its action. The author intends to continue using antitoxin by the mouth as a prophylactic measure.

**Dislocation of the Hip Joint arising in connection with Acute Fevers.**—H. Stansfield Collier<sup>3</sup> writes that dislocations have been many times recorded in connection with typhoid fever and acute rheumatism, a few times in cases of scarlet fever, and very rarely in the course of typhus. On reading the records of cases one is struck with the marked clinical difference between the typhoid and the rheumatic cases. The salient features of the dislocation connected with typhoid appear to be these: Dislocation has usually occurred in the early days of convalescence when the patient has been profoundly feeble. In many cases the precise instant of displacement has not been noticed. In other cases some slight strain, as in getting out of bed or turning in bed, has been recognized as a contributing cause. In no case, as far as the author has noticed, have any joint phenomena been seen antecedent to the occurrence of the dislocation. The dislocation has usually been attended and succeeded by very little pain. Reduction has usually been easy, even after some weeks, and recurrence has happened in several cases. In the rheumatic cases the dislocation has been preceded by marked evidence of acute inflammation, attended by terrible suffering and a vicious attitude of exaggerated flexion. The occurrence of dislocation has been almost immediately followed by great relief of pain. Of cases occasioned by scarlet fever, most have conformed to the typhoidal type, in that they have occurred suddenly without previous evidence of joint disease. On the pathological anatomy of the subject there is very little information. Verneuil attributes the chief cause to the condition of the surrounding muscles, some of which he believes to be in a paretic condition from alteration of structure, while antagonistic muscles, not so altered, and acting excessively, apply force in an abnormal direction, thrust the head of the femur out of the acetabulum, and push before it the softened capsule or push the head through the capsule.

**Ectopia Vesicæ, Final Results of Operation for.**—Sonnenburg<sup>8</sup> presents three cases upon whom he has operated successfully (one sixteen years ago), and concludes that the formation of the bladder alone is of little avail unless continence can be secured at the same time; hitherto this has been impossible. The newly-formed bladder is of insufficient capacity except in a recumbent position, and the formation of incrustations gives rise to much pain and danger. The best

method seems to be the extirpation of the bladder and the sewing of the ureters into the penis. A receptacle for the urine is then fitted and worn night and day. Transplantation of the ureters to the intestine is accompanied by the danger of pyelonephritis.

**Eye Complications of the Acute Specific Fevers.**—Percy Flemming,<sup>9</sup> in the course of an article upon this subject, writes that there are various channels by which the virus may reach the eye. The simplest way is by direct inoculation. Or it may be by direct microbic invasion, the cocci advancing in the lymphatics of the skin, as in erysipelas. More commonly, as in measles, the conjunctiva becomes inflamed as part of the general catarrhal condition, or, as in diphtheria, the inflammation may spread by continuity from the nose by the nasal duct. Such modes of infection are easily understood, but complications of deep structures, such as the optic nerve, the orbital tissue, and even the central nervous system, are frequently observed, and it is important to investigate their mode of origin. According to current pathological doctrines, such conditions are brought about by the absorption of "toxins," the products of the specific organisms, the toxins picking out particular structures and acting on them. Another explanation is to be found in the anatomical relations that exist between the orbit and the nasal fossæ with their communicating air sinuses. Inflammation of the mucous membrane of the nose is common in several of these fevers, and such inflammation may be spread to the frontal, ethmoidal, and sphenoidal sinuses, and from these in turn the orbital contents may become involved. Moreover, the optic foramen or canal is only separated by a very thin plate of bone (which may in some cases be perforated) from the cavity of the sphenoidal sinus, and it is easy to realize that inflammatory conditions may involve the nerve there and set up a retro-ocular neuritis, and such a neuritis does occur as a sequel of the fevers. An acute febrile illness seems to leave the patient in a condition in which he is more susceptible to microbic invasion. The neglect of these late inflammatory conditions, for the most part superficial in the first instance, leads to destructive inflammation of the deeper tissues of the eye, and it is amongst the class that attend the hospitals that these severe complications of the acute specific fevers are met with.

**Fevers in Children.**—Among other things, Samuel S. Adams<sup>10</sup> says that in all acute infectious diseases this principle should be our guide: Rather use intelligence in interpreting the injurious effects of high temperature than plunge the patient into a bath or resort to internal means of reducing temperature because the thermometer registers a high degree. Some children will bear a temperature of 103° or 104° without any cerebral manifestations, yet in the same family there may be other children who are thrown into a state of high nervous excitability by a temperature of 101° or 102°. We must, therefore, determine the effect of the high temperature upon the

*individual* child rather than base our treatment on the high temperature alone. In infants the temperature should always be taken in the rectum; in a case recalled by the author the temperature registered normal in the mouth and  $105.5^{\circ}$  in the rectum. The way to make a diagnosis is not on any one symptom, but on the group of symptoms which the pathologic condition presents. If there is no sign of cerebral disturbance, though the temperature is high, there is no necessity for its reduction; indeed, by reducing it one often loses sight of the most valuable symptoms and obscures the diagnosis. After the diagnosis has been made the temperature may be reduced intelligently and safely. As to the treatment of fevers, the author believes that antipyrin is a most dangerous drug—he has known patients to be made rational by a dose of it, and within twenty-four hours relapse into a condition of high temperature because the heart had never regained the tonicity which it had had prior to the violent reduction of the temperature by antipyrin. His experience with antifebrin is similar, and with phenacetin a little better. The administration of the latter should usually be accompanied by free stimulation.

The reduction of temperature by the external application of cold the author considers to be the most beneficial, and also the most stimulating to the various systems. It may be done by means of the cold pack, the application of the ice cap to the head or of the ice coil to the abdomen, but far the best method is the application of the Brand method, pure and simple. He has no compunction whatever in taking from its bed a child having one of the infectious diseases with a high temperature and accompanying nervous excitement, and placing it in a bath under proper conditions, for he believes he is not only reducing the temperature, but placing the system in far better condition than prior to the administration of the bath. The bath tub must be brought to the patient, and the latter be gently lifted out of bed and placed in the tub, and then the manipulations should be conducted during the bath and the necessary stimulation given.

The complications and sequelæ to acute infectious diseases are seen much less frequently than in former years, because of the freer use of water and the better ventilation of the sick-room, and also because of the practice of placing patients in baths. This treatment favors the elimination of the toxic material, and, as a result, convalescence is more rapid and smooth and the complications and sequelæ are avoided. The temperature of the bath varies in different cases. With a temperature of  $105^{\circ}$  the author advises caution in the reduction of the bath below  $95^{\circ}$ . Some advise a bath at  $60^{\circ}$ , or even  $50^{\circ}$  F., but he claims that just as good results are obtained at  $95^{\circ}$  to  $100^{\circ}$ , provided a cold cloth is applied meanwhile to the head. The ordinary duration of a bath is ten minutes, during which time the patient should be subjected to continuous friction.

**Functional Heart Murmurs in Nurslings.**—Thiemich "reports the case of an anemic, rachitic baby, 6 months old,



who died of pneumonia. For a week before death a distinct systolic murmur was heard at the apex. At the autopsy the heart was found slightly large, the muscle of the right ventricle very pale and flabby; no valvular lesion and no malformation. In the absence of any anatomical explanation, and from the fact that the murmur was heard for days, even during a pause in the respiration after a long crying spell, the case must be looked upon as a functional murmur.

**Gastro-enteritis.**—R. Saint-Philippe<sup>12</sup> treats of the cure of the gastro-enteritis which persists after weaning and is the result of suppression of the milk food. He says that not ten out of a hundred infants are methodically and scientifically weaned. Routine, caprice, ignorance, as a rule, direct the process, and a capital and radical change is made in the case of these little creatures whose delicate organs require careful handling. The equilibrium of their functions is rapidly destroyed; “digestive troubles,” with their lamentable following of injurious and disastrous consequences, appear and resist all treatment, becoming established in chronic form and leading to deterioration of the organism, unless some acute or infective process become superadded and menace existence itself. It is customary to say that the children have gastro-enteritis. The author thinks that the term *gastro-intestinal dyspepsia* would be more correct, for the digestion is disturbed and the diarrhea is a result. The abdomen is more often hollow, soft, flabby, and non-sensitive than tense, hard, and painful. There is frequent regurgitation and vomiting. The stools are fetid, fluid, and more frequent during the day than at night. The liver is enlarged and sensitive to the touch. Emaciation and cachexia make rapid progress. Under these conditions the routine practice is to prescribe a mixed or absolute milk diet. Against this custom Saint-Philippe protests. He believes that milk is not only valueless but positively harmful. He has seen a large number of infants in whom the diarrhea continued and all the symptoms became progressively worse, although milk, and nothing but milk, was given them. The case of one child in especial he describes, an infant 20 months old, who seemed like a little corpse, with an enormous abdomen, enlarged liver, emaciated legs, yellow skin, and the sad and apathetic look of those suffering from intoxication. He tried sterilized milk in the most scientific manner and under the most favorable conditions, but the dyspepsia and the diarrhea continued. Death seemed imminent. An ordinary diet was resumed and a few hygienic measures followed and medicaments given, and complete recovery resulted. The child is the wonder of the clinic.

It must be remembered that milk is not a panacea to all digestive tracts. Normal conditions and pepsin are necessary to its digestion. If the well-known conditions of its digestion are disturbed, if the digestive juices are altered, if the living germs change or become noxious, the chemical and physiological processes will probably be defective. Kellar has found an excess of ammonia in the urine of nursing infants suffering



from gastro-enteritis, and whether his theory of an acid intoxication be true or not, it is evident that milk must be subject to abnormal modifications in such a medium. The toxicolytic action of the intestinal epithelium and of the liver tissue can only be exercised when the walls and tissues are in good condition. This integrity does not exist in this affection, so that the digestive processes are interfered with, and the phenomena of fermentation, putrefaction, and gastro-intestinal intoxication follow. Milk introduced under these conditions causes revolt of the stomach and intestines, and nursing infants are treated by a suspension of milk and a *hydric* regimen. In the same way in the case of weaned infants the author would suspend milk and give a nourishing diet. For several days he would give feculent and cereal decoctions, albumen water, weak tea, sweet infusions of malt coffee, or Val's water sweetened with a small amount of punch syrup. The kidneys should be stimulated and the functions of the skin excited by dry friction. When the diarrhea has ceased the dyspepsia must be treated by all known means. Hot salt baths, injections of artificial serum, inhalations of oxygen, and open-air treatment will be valuable aids in building up the system. But *milk* should not be given for a long time. In conclusion, he sums up thus:

1. When a weaned infant, having had diarrhea for some time, is brought to the physician, the first thing to do is to put it on a test diet of milk.

2. If after a few days the diarrhea still persists, and an inspection of the stools shows that the milk has been not at all or incompletely digested, it must be *suppressed altogether*, in whatsoever form administered.

3. For a transition period it should be replaced by a fluid diet composed of slightly analeptic substances. Gradually and with discretion the child is put upon a more substantial diet. Dyspepsia and its results, intoxication and anemia, are to be treated.

4. To avoid these infantile diarrheas the weaning should, for the first month, be under the surveillance of the physician.

**General Paralysis of the Insane in a Child.**—An editorial<sup>19</sup> comments upon a case which is interesting because of the early period of life at which it occurred, the sex of the patient, and the etiology. A girl in a family of seven children, of whom four, exclusive of the patient, exhibited distinct signs of congenital syphilis, developed at the age of  $4\frac{1}{2}$  years a squint which was operated on nine months later. At about the same time she began to suffer from severe and frequent headache. At the age of  $9\frac{1}{2}$  years extensive patches of choroidal atrophy were detected in each eye. The headache was greatly relieved by iodide of potassium. Jaundice was never observed. When the girl was between  $10\frac{1}{2}$  and 11 years of age it was found that she was not improving in her school work and she seemed to be growing stupid and irritable. At the age of 12 years she began to have convulsive attacks, which continued at varying intervals throughout life, and she

became less intelligent. Speech was characteristically affected by the time the patient was  $12\frac{1}{2}$  years old, and her knee-jerks were greatly exaggerated when 13 years of age. Several distinct hallucinations appeared at the age of 14 years. At about this time she became abnormally fat, but afterward she steadily emaciated. Six months before death an attack of subacute periostitis developed over the left tibia, which was greatly relieved by iodide of potassium. Death occurred amid signs of extreme debility of body and mind, at the age of 17 years. Upon postmortem the calvarium and the dura were found thickened, and the latter was in places adherent to the brain. There was an excess of cerebro-spinal fluid at the base of the brain and in the widened sulci of the vertex. The plexarachnoid was opaque, thickened, and adherent. The cerebral convolutions were generally atrophied, but in a most marked degree in the frontal and parietal regions. The ventricles were dilated and their ependyma was granular. Microscopic examination of sections of the cortex disclosed diminution in number of the ganglion cells and atrophy of those remaining, with hyperplasia of the neuroglia, perivascular infiltration, and hyaline degeneration of the smaller vessels and capillaries.

**Impetigo.**—M. F. Marié Davy<sup>12</sup> contributes a study of the bacteriology of this affection, which he sums up as follows: When the specimens were taken from the centre of the pustules the cultures always showed the presence of the pure streptococcus, even though direct examination showed only cocci and diplococci. Inoculation always reproduced the characteristic pustule or else was negative in result. The pustule resulting from inoculation reproduced the same phenomena by culture or to examination as the original pustule.

When the specimen was from the edge of the pustule the cultures rarely showed streptococci, and its colonies were rapidly invaded by colonies of staphylococci, which were always present in large number. Direct examination showed masses of cocci and diplococci.

The conclusions reached are these:

1. The streptococci found in all the lesions are of slight virulence. They develop very slowly, and often no colonies at all are produced in the cultures.

The staphylococci found in certain lesions are rapidly developed and of luxuriant growth. Whenever there was a mixture of the two varieties these always invaded the colonies of streptococci and destroyed them.

If the staphylococci were the cause of the lesion the streptococci would not be able to multiply secondarily, and in cultures made with the serous fluid the staphylococcus alone would be able to develop, or at least the streptococcus would be in decided minority. But the contrary was the case.

2. If the streptococci were the secondary micro-organisms and the staphylococci the cause of the lesion, the latter would more frequently be found in the centre and the former toward the periphery of the lesion. Now in pure cultures the case is reversed.

3. If the staphylococci were the cause of the lesion they would be transmitted by inoculation, and would be found in more or less pure culture in the inoculated pustules. But it is the streptococcus which is usually found in these cases.

4. If there were an association of microbes, no matter what the age of the pustules nor at what point the specimen was taken, the culture would give mixed colonies of associated microbes. The lesions produced by inoculation would give the same association, and the secondary pustules from inoculated pustules would be like the first.

Now cultures made with serous fluid from young pustules or from the central portion of old pustules always give the pure streptococcus, and some have even been found in pustules obtained by inoculation. The author therefore thinks it fair to conclude:

1. That the micro-organism of impetigo is a streptococcus in short chains.

2. That this streptococcus is the sole agent of infection, there being no association of microbes.

3. Staphylococci are found in impetigo only as inactive accidental elements, or as a lesion grafted accidentally upon the first but distinct from it.

**Intussusception, Prognosis and Treatment of Acute.**—George Heaton<sup>14</sup> states that this trouble is particularly common in young children, and in them is apt to terminate fatally very quickly, its presence in many cases being overlooked. The presence of blood mucus in the rectum or its passage per anum is almost pathognomonic of the disease. The onset is usually sudden and is often attended with collapse. The pain is usually referred to the umbilicus and is colicky in character. Actual vomiting is a very variable symptom and may be absent. It is persistent in about one-quarter of the cases and becomes feculent. Straining or tenesmus may be a marked symptom, but is not so constant as vomiting. It seems to be more generally present in intussusception of the large intestine. The presence of a sausage-shaped tumor in addition to above-mentioned symptoms would make the diagnosis almost a matter of certainty. But in 50 per cent of the cases no such tumor can be made out. Of reports collected of 104 cases there was a mortality of 63.4 per cent. In these the abdomen was opened in 55 cases, generally after failure by injection or inflation to reduce the intussusception. Of the remaining cases, 23 were reducible, with 8 deaths, or 34.8 per cent mortality, and 32 were irreducible or gangrenous, with a mortality of 91.7 per cent. Gibson, in his table of 149 cases operated upon, shows that the percentage of cases in which the intestine was irreducible varied directly with the number of days of illness. First day of illness, percentage of reducible cases, none; second day, 14; third day, 38; fourth day, 57. As the mortality is 34.8 in the one and 91.7 in the other, the importance of early operation is evident. The author gives statistics to prove that even among reducible intussusceptions inflation is not such a successful mode of treatment as abdominal section. The great

disadvantages of large enemata are: 1. The immediate risk of overdistension and rupture of the bowel. 2. It is quite impossible through the unbroken abdominal wall to determine positively that an intussusception has been completely reduced. 3. The greatest drawback to inflation is that if symptoms continue in spite of apparent reduction valuable time has been lost. For this reason the author would limit treatment by inflation to cases of intussusception in infants under 6 months, who have been ill only a few hours, and in whom an abdominal tumor is well marked and a laparotomy can be done at once if necessary.

W. P. Northrup<sup>15</sup> presents the report of a case in an infant 9 months old treated with high rectal injection, with recovery. The features of the case were that the child awoke from an early afternoon nap crying with colic. The diagnosis was made four hours after the crying, the patient at that time being found pale, apathetic, and relaxed. Vomiting occurred several times. A sausage-shaped tumor was discovered along the lower margin of the liver and easily felt. An enema of warm water was given, which was followed by the passage of free blood and mucus. Two high rectal injections resulted in reduction of the intussusception. Some previous experience strengthens the author's belief that in recent cases moderate pressure (three to five feet) of warm water (105° to 108°), prolonged to full distension, is justifiable and advisable.

**Non-diphtheritic Pseudo-membranous Rhinitis.**—J. Price-Brown<sup>17</sup> reports some cases of this trouble with remarks upon the subject, which may be summarized as follows: 1. Non-diphtheritic pseudo-membranous rhinitis does sometimes occur, and, though a very rare disease, it is probably as frequent as *primary* nasal diphtheria. 2. On clinical grounds it is possible, in a majority of cases, to distinguish it from genuine diphtheritic disease. 3. Owing to a possible mistake in diagnosis, isolation in all cases should be imperative until a reliable bacteriologic examination can be made.

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#### ITEM.

THE editors of the *Jeffersonian*, a medical magazine published by the students of Jefferson Medical College, Philadelphia, desire to obtain a complete list of the alumni of the college, and they ask that information concerning the whereabouts of any of its graduates may be sent them in care of the college.



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